



Industry Series

Copper, Lead, Zinc, Gold, and Silver Ores

1021	Copper Ores
1031	Lead and Zinc Ores
1041	Gold Ores
1044	Silver Ores



U.S. Department of Commerce

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Copper, Lead, Zinc, Gold, and Silver Ores

CONTENTS

[Page numbers listed here omit the prefix number that appears as part of the number for each page]

	Fiche/Frame
Introduction.	1/A4
Users' Guide in Locating Statistics by Table Number	1/A8
Description of Industries.	1/A9

TABLES

INDUSTRY STATISTICS

1. Historical Statistics for the Industry: 1977 and Earlier Years	1/A12
2. Industry Statistics by Geographic Area and Type of Operation: 1977 and 1972	1/A13
3a. Summary Statistics for the Industry by State: 1977	1/B1
3b. Summary Statistics for the Industry by Type of Operation: 1977	1/B3
4. Industry Statistics by Employment Size of Establishment: 1977	1/B5

PRODUCT STATISTICS

5a. Industry-Product Analysis—Summary of Industry Shipments and Receipts and Net Shipments of Primary Products: 1977 and 1972	1/B6
5b. Ores Mined and Gross-Metal-Content Shipments: 1977	1/B6
6. Products—Quantity and Value of Shipments by State: 1977 and 1972	1/B7

MATERIALS STATISTICS

7. Selected Supplies and Fuels Used, Minerals Received for Preparation, and Purchased Machinery Installed: 1977 and 1972	1/B9
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APPENDIX

Explanation of Terms.	1/B11
Publication Program.	1/C1



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INTRODUCTION

	(Page)
HISTORY OF THE ECONOMIC CENSUSES	III
USES OF THE ECONOMIC CENSUSES	III
AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES	III
CENSUS OF MINERAL INDUSTRIES	III
General	III
Scope of Census and Definition of Mineral Industries	IV
Establishment Basis of Reporting	IV
Mineral Industries Universe and Report Forms	IV
Central Administrative Offices and Auxiliary Units	V
Industry Classification of Establishments	V
Value of Shipments for the Industry Compared with Value of Product Shipments	V
CENSUS DISCLOSURE RULES	VI
MICROFICHE AND COMPUTER TAPES	VI
SPECIAL TABULATIONS	VI

HISTORY OF THE ECONOMIC CENSUSES

The economic censuses are comprehensive and periodic canvasses of the Nation's industrial and business activities. Taken by the Census Bureau, an agency of the U.S. Department of Commerce, the censuses provide a detailed statistical profile of a large segment of the national economy.

The first economic census of the United States was conducted as part of the 1810 decennial census, when inquiries on manufacturing were included with the census of population. All other decennial censuses through 1900, except in 1830, contained questions on manufacturing. In 1904 the quinquennial census of manufacturing began. The first census of mineral industries covered 1840, and a census was taken at approximately 10-year intervals through 1939, usually in connection with the decennial census of population. A partial census covering the coal industries was conducted in 1935 in cooperation with the Bureau of Mines as part of the 1935 Census of Business. Although some distributive trade data were collected in the decennial census of 1840, the first census of business was taken in 1929. It covered only retail and wholesale trades, but beginning with the second business census in 1933 and in succeeding censuses various services also have been included. The censuses were taken at varying intervals until 1954, when an integrated economic census program was begun covering the retail and wholesale trades, selected service industries, manufactures, and minerals industries. The 1963 Economic Censuses were expanded to include transportation and commercial fisheries. The 1967 Economic Censuses added construction industries, which had first been reported on for 1929 in the decennial census of 1930 and later had been surveyed for 1935 and 1939. Beginning with the 1967 censuses, Congress authorized the economic censuses to be taken at 5-year intervals covering years ending in "2" and "7". The survey of minority-owned businesses was added to the 1972 Economic Censuses. It was first done as a special project to cover 1969. The 1977 Economic Censuses included women-owned businesses, which were first surveyed as a special project for 1972.

USES OF THE ECONOMIC CENSUSES

The economic censuses are the primary source of facts about the structure and functioning of the economy and, therefore, provide information essential for both government and business. The censuses furnish an important part of the framework for such composite measures as the national accounts. In forecasting and planning, they are especially useful in analyzing the national product in terms of the transactions that determine its size and composition. The economic censuses also provide weights and benchmarks for indexes of industrial production, productivity, and price, all of which are essential for understanding current economic developments.

Manufactures and distributors make widespread use of the economic censuses in establishing measures of their potential markets by areas, kinds of businesses, and kinds of products. Management in various industries and trades get facts from them for use in economic or sales forecasting, analyzing sales performance, laying out sales territories, allocating advertising budgets, and locating plants, warehouses, and stores. Trade organizations use census statistics for insight into changes in the structure of industry. State and local governments use the geographic detail that describes the patterns of economic change in individual communities.

Following every census, reports are purchased by thousands of businesses and other users; likewise, census facts are widely disseminated by trade associations, business journals, and the daily press. Volumes containing census statistics are available in most major public and college libraries.

AUTHORITY AND SCOPE OF THE ECONOMIC CENSUSES

The economic censuses are required by law under title 13 of the United States Code, sections 131, 191, and 224, which directs that they be taken at 5-year intervals. The 1977 Economic Censuses covered manufacturing, mining and quarrying, construction industries, retail trade, wholesale trade, service industries, selected transportation activities, and minority-owned and women-owned businesses. The next economic censuses are scheduled to be taken in 1983 covering the year 1982.

CENSUS OF MINERAL INDUSTRIES

General

The 1977 Census of Mineral Industries is the 18th census of mining establishments in the United States. For 1977, it was conducted jointly with the censuses of manufactures, construction industries, retail and wholesale trades, service industries, selected transportation activities, and minority-owned and women-owned businesses.

This report from the 1977 Census of Mineral Industries is one of a series of 14 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each geographic division showing statistics by State and on special subjects such as size of establishment, type of organization, assets, capital expenditures, type of operation, and fuels and electric energy consumed.

These separate reports will subsequently be included as portions of the final census volume. The volume—Subject, Industry, and Area Statistics—will show comparative figures for industries and States on the more important measures of the activity of mining establishments, such as employment, payrolls, value of shipments, capital expenditures, value added in mining, selected materials consumed, and energy used. It will include, besides the industry statistics, geographic area statistics (number of establishments, employment, payrolls, value added, value of shipments, and capital expenditures) for each State and county, by industry group and statistics on selected subjects. The Introduction to the final volume of the Census of Mineral Industries will discuss at greater length many of the subjects described in this introduction. For example, the volume text will discuss the economic significance of the mining sector, the relation of value added in mining to value added by manufacture, some of the changes in statistical concepts over the history of the census, and the valuation problems arising from intracompany transfers between mining establishments, manufacturing plants, and sales offices and sales branches of a company,

Scope of Census and Definition of Mineral Industries

The 1977 Census of Mineral Industries covers all establishments primarily engaged in mining as defined in the 1972 Standard Industrial Classification (SIC) Manual.¹ This is the system of industrial classification developed over a period of years by experts on classification in government and private industry under the guidance of the Office of Federal Statistical Policy and Standards, U.S. Department of Commerce. This system of classification is in general use among Government agencies and also widely used outside the Government.

The SIC Manual defines mining in the broad sense to include the extraction of minerals occurring naturally: Solids such as coal and ores, liquids such as crude petroleum, and gases such as natural gas. The term "mining" is used in the broad sense to include quarrying, well operation, milling (crushing, screening, washing, flotation, etc.), and other preparation needed to make the mineral marketable. Exploration is included as is the development of mineral properties. Services performed on a contract, fee, or other basis in the development of mineral properties are classified separately but within this division.

Mining operations are classified by industry on the basis of the principal mineral produced or, if there is no production, on

the basis of the principal mineral for which exploration or development work is in progress. The recovery of material from culm banks, ore dumps, and other waste minerals piles is classified in the appropriate mining industry according to the mineral product recovered.

The crushing, grinding, or other treatment of certain earths, rocks, and other nonmetallic minerals not in conjunction with mining activities are not included in this division but are classified as manufacturing. Hauling and other transportation beyond the mine property and contract hauling (except out of open pits in conjunction with mining) also are excluded.

Mining operations carried on as secondary activities at manufacturing establishments (such as clay pits at clay products plants or sand and gravel operations at ready-mixed concrete plants) are not within the scope of this census. However, selected data (production workers' wages and hours; total cost of supplies, fuels, electric energy, and contract work; and quantity of production for mined products) on such mining activities have been obtained in the 1977 Census of Manufactures and are included in the mining reports. They are clearly specified wherever included.

Establishment Basis of Reporting

The census of mineral industries covers each mining establishment of firms with one paid employee or more operating in the United States. A firm operating more than one establishment must file a separate report for each location. A mineral establishment is defined as a single physical location where mineral operations are conducted. Companies engaged in distinctly different lines of activity at one location are asked to submit separate reports if company records permit such a separation and the activities are of significant size.

For oil and gas field operations and contract services, reporting was somewhat different from the "establishment" reporting basis used for other types of mining. Every concern operating oil and gas wells, drilling wells for its own account or for others, or exploring for oil and gas, was required to submit a separate report for each State or offshore area adjacent to each State in which it conducted such activities. Concerns which supplied contract services for mining establishments were required to submit one report covering all such activities in the United States.

Mineral Industries Universe and Report Forms

From a universe of approximately 29,000 mining establishments in the 1977 Census of Mineral Industries, approximately 11,000 small single-establishment companies were excused from filing reports. Selection of the single-establishment nonmail cases was done on an industry-by-industry basis. A variable cutoff was used to determine those establishments for which administrative records were to be used in place of a census report. The cutoffs were selected so that the administrative records cases would account for approximately 3 percent of the value of shipments for the industry. These cutoffs were then adjusted so that all

¹ Standard Industrial Classification Manual: 1972. For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 4101-0066. Price \$6.75. 1977 Supplement. Stock No. 003-005-00176-0. Price 90 cents.

single-establishment companies with fewer than 5 employees were excluded from the mail canvass, while all establishments with more than 10 employees were included. An abbreviated census form was used for the crushed stone and construction sand and gravel industries, in which most establishments in the 5- to 20-employee size range were included.

For the nonmail establishments, estimates were made from payroll and receipts data obtained from the files of the Social Security Administration and the Internal Revenue Service. The administrative records data were obtained under special arrangements to safeguard the confidentiality of both tax and census records. Estimates for data other than payrolls and sales for these small establishments were developed from industry averages. The value of shipments and cost of materials were not distributed among specific products and materials for these establishments, but were included in the products and materials "not specified by kind" categories.

In the 1977 Census, as in the 1972 and 1967 censuses, data for single-unit firms without paid employees were excluded. This exclusion had only a slight effect on industry aggregates for most industries. Data for firms without employees were included in the 1963, 1958, and 1954 censuses if they reported more than \$500 in (1) value of shipments and receipts, (2) cost of supplies and purchased machinery, or (3) capital expenditures.

The industry classification codes included in the administrative records files were used for those establishments excused from filing census forms. Generally, these codes were assigned on the basis of brief descriptions of the general activity of the establishment. Where the description is incomplete, or where there are relatively fine lines of demarcation among industries or between mining and nonmining activities, the code assigned to an establishment could differ from that which would have been assigned on the basis of more complete product or activity information. Therefore, the total establishment count should be viewed as an approximate measure. The counts for establishments with 20 employees or more are far more reliable.

Central Administrative Offices and Auxiliary Units

In the 1977 census, as in previous censuses, respondents were asked to file separate reports (Form NC-X6) for central administrative offices (CAO's) and auxiliary units. A central administrative office is an establishment whose employees are primarily engaged in general administrative, supervisory, purchasing, accounting, general engineering and systems planning, and legal, financial, and related management functions performed centrally for other establishments of the same company. An auxiliary is an establishment whose employees work primarily in supporting services for other establishments of the same company (i.e., its mines, factories, retail stores, etc.), rather than for other business firms or organizations. Employment and payroll data for central administrative offices and auxiliary units that primarily serve mining establishments are included in tables 1-4.

Industry Classification of Establishments

Each of the establishments covered by the census was classified in one of 42 mineral industries in accordance with the industry definitions in the SIC system. Under this system of classification, an industry is generally defined as a group of establishments producing the same main product or closely related group of products. The resulting group of establishments must be significant in terms of its number, value added in mining, value of shipments, and number of employees. Application of these criteria led to formulation of 42 mining industries, to each of which a 4-digit code number was assigned. The classification system also provides broader groups of industries, with twenty 3-digit groups and five 2-digit groups. Within industries, the system provides for 7-digit products and 5-digit product classes. Products are considered primary to an industry if the first four digits of the product codes are the same as the industry code. Products whose first four code numbers differ from the industry code are called secondary products. To determine the industry classification of an establishment, the 7-digit products are grouped together according to the first four digits of the product code. The first four digits of the group of products with the largest value of production become the industry code for the establishment. (For service industries, the classification is on the basis of receipts for services performed.)

In most industries, establishments making products falling into the same industry category use a variety of processes. Separate statistics are provided on the various types of operation. Whenever possible, separate figures are shown for establishments with mines only, mines with preparation plants, and preparation plants only. Separate figures are provided by type of mine (underground, open-pit, and combination). Separate statistics also are provided on producing and non-producing operations, an establishment being defined as non-producing if no mineral products were shipped during the year. For the crude petroleum and natural gas industries, figures are shown for producing (with drilling and without drilling) and nonproducing operations. Additional details are shown on number of wells drilled and operated.

Statistics also are usually provided on the production of minerals mined and used in the same establishment in producing prepared minerals or used in the producing establishment for fuel.

Differences in the integration of production processes and types of operation should be considered when relating the general items (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

In census of mineral industries publications, value of shipments data are published for industries and products. Value of shipments figures shown in tables 1-4 represent the total value of shipments of all establishments classified in the particular industry. This figure includes the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and

miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Product shipments shown in table 6 represent the total value of shipments of products classified as primary to an industry that were shipped by all mining establishments regardless of their industry classification.

CENSUS DISCLOSURE RULES

The Bureau of the Census is prohibited by Federal law from publishing any statistics that disclose information reported by individual companies. However, the number of companies classified in a specific industry is not considered a disclosure, so this item may be given even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1-4 of this report, is based on the total value of shipments. Whenever the total value of shipments cannot be shown without disclosing information for individual companies, the complete line has been suppressed. However, the suppressed data are included in higher level totals.

MICROFICHE AND COMPUTER TAPES

All data in the final reports and volume are available on microfiche. Most of the summary data published in the final reports (both Industry and Area) are also available on computer tapes. In this industry report, tables 1, 2, 3a, 3b, and 4 are available on computer tape. Microfiche reports and computer tapes are sold by Customer Services Branch, Data Users Services Division, Bureau of the Census, Washington, D.C. 20233.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1977 Census of Mineral Industries may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, D.C. 20233.

USERS' GUIDE IN LOCATING STATISTICS BY TABLE NUMBER

(For explanation of terms, see appendix)

Item	Industry historical	Industry by State	Industry by type of operation	Industry by employment size	Industry- product analysis	Detailed product shipments by State	Detailed materials and fuels consumed by industry
Number of operating companies	1						
Establishments:							
Total number	1	2, 3a	2, 3b	4			
Employment size	1	2, 3a	2, 3b	4			
Employment and payroll:							
Number of employees	1	2, 3a	2, 3b	4			
Payroll	1	2, 3a	2, 3b	4			
Production, development, and exploration—							
Workers	1	2, ¹ 3a	2, ¹ 3b	4			
Hours	1	2, ¹ 3a	2, ¹ 3b	4			
Wages	1	2, 3a	2, 3b	4			
Supplemental labor costs		¹ 3a	¹ 3b				
Value added, cost of materials, ship- ments, and inventories:							
Value added in mining	1	2, 3a	2, 3b	4			
Cost of materials	1	2, 3a	2, 3b	4			¹ 7
Resales, cost and value		3a	3b				
Purchased fuels		3a	3b				¹ 7
Purchased electricity		¹ 3a	¹ 3b				
Cost of contract work		3a	3b				
Industry shipments and receipts	1	2, 3a	2, 3b	4	¹ 5		
Value of net shipments	1				¹ 5		
Product shipments						6	
Inventories		¹ 3a	¹ 3b				
Gross value of depreciable or depletable assets, beginning and end of year:							
Buildings and structures		3a	3b				
Machinery and equipment		3a	3b				
Mineral exploration and development		3a	3b				
Mineral land and rights		3a	3b				
New and used capital expenditures, excluding land and rights:							
Total	1	2, 3a	2, 3b	4			
Buildings and structures		3a	3b				
Machinery and equipment		3a	3b				
Mineral exploration and development		3a	3b				
Capitalized mineral land and rights		3a	3b				
Rental payments		¹ 3a	¹ 3b				
Expensed mineral exploration, develop- ment, land, and rights		¹ 3a	¹ 3b				
Cost of purchased communication services		3a	3b				

¹ Detailed information shown.

DESCRIPTION OF INDUSTRIES

COPPER, LEAD, ZINC, GOLD, AND SILVER ORES

This report shows 1977 Census of Mineral Industries statistics for establishments classified in each of the following industries:

SIC Code and Title

1021	Copper Ores
1031	Lead and Zinc Ores
1041	Gold Ores
1044	Silver Ores

The industry statistics (employment, payroll, value of shipments, cost of supplies, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments, but also all secondary activities performed by the same establishments. This fact should be taken into account in comparing industry statistics (table 1-4 and 7) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and also the value of net shipments of primary products of the industry produced as secondary products by establishments classified in other industries.

Small single-unit companies with up to 20 employees (the cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other government agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions contained in the 1972 Standard Industrial Classification Manual and its 1977 supplement.

INDUSTRY 1021, COPPER ORES

The industry includes establishments primarily engaged in mining, milling, or otherwise preparing copper ores. This industry also includes establishments primarily engaged in the recovery of copper concentrates by precipitation and leaching of copper ore. Establishments primarily engaged in the recovery of refined copper by leaching copper concentrates are classified in Major Group 33, Primary Metal Industries. The total value of shipments for the industry was \$1,856 million in 1977, an increase of 17 percent over the 1972 total value of shipments of \$1,589 million. Value added in mining rose to \$1,067 million in 1977, 4 percent higher than the 1972 value added of \$1,025 million. Total employment for the industry decreased to 33.1 thousand employees in 1977, from 36.4 thousand in 1972. Value added per employee at \$32.2 thousand in 1977 was 14 percent higher than in 1972.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of total value of shipments.

INDUSTRY 1031, LEAD AND ZINC ORES

The industry includes establishments primarily engaged in mining, milling, or otherwise preparing lead ores, zinc ores, or lead-zinc ores. The total value of shipments for the industry was \$418 million in 1977, an increase of 66 percent over the 1972 total value of shipments of \$251 million. Value added in mining rose to \$329 million in 1977, 65 percent higher than the 1972 value added of \$200 million. Total employment for the industry decreased to 7.1 thousand employees in 1977, from 7.7 thousand in 1972. Value added per employee at \$46.3 thousand in 1977 was 79 percent higher than in 1972.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of total value of shipments.

INDUSTRY 1041, GOLD ORES

The industry includes establishments primarily engaged in mining gold ores from lode deposits or in the recovery of gold from placer deposits by any method. In addition to ore dressing methods such as crushing, grinding, gravity concentration, and froth flotation, this industry includes amalgamation, cyanidation, and the production of bullion at the mine, mill, or dredge site. The total value of shipments for the industry was \$99 million in 1977, an increase of 78 percent over the 1972 total value of shipments of \$56 million. Value added in mining rose to \$78 million in 1977, 68 percent higher than the 1972 value added of \$47 million. Total employment for the industry increased to 2.6 thousand employees in 1977, from 1.8 thousand in 1972. Value added per employee at \$30.1 thousand in 1977 was 16 percent higher than in 1972.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 4 percent of total value of shipments.

INDUSTRY 1044, SILVER ORES

The industry includes establishments primarily engaged in mining, milling, or otherwise preparing silver ores. The production of bullion at the mine or mill site is included. The total value of shipments for the industry was \$100 million in 1977, an increase of 424 percent over the 1972 total value of shipments of \$19 million. Value added in mining rose to \$83 million in 1977, 510 percent higher than the 1972 value added of \$14 million. Total employment for the industry increased to 2.0 thousand employees in 1977, from 1.0 thousand in 1972. Value added per employee at \$41.4 thousand in 1977 was 204 percent higher than in 1972.

Establishments of single-unit companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of total value of shipments.

COMPARABILITY WITH BUREAU OF MINES STATISTICS

Census Bureau statistics on products of the Copper Ores, Lead and Zinc Ores, Gold Ores, and Silver Ores industries are generally comparable with product statistics for the same commodities published by the Bureau of Mines. The table below shows the most nearly comparable statistics.

The differences which occur result primarily from differences in data collection methods, coverage, and objectives sought. The major reasons for the differences in comparability of product statistics between the two agencies are:

1. Census statistics on crude ores for these industries represent all ores mined by establishments classified in the Copper Ores, Lead and Zinc Ores, Gold Ores, and Silver Ores industries. Separate totals are available for each of the four industries. Figures do not include materials bearing such metals produced in other industries, nor do they differentiate between various types of ores which may be produced at the same establishment, such as lead ores which might be produced as a secondary product at an establishment classified in the Silver Ores industry. Bureau of Mines figures for tonnage of crude ores represent ores of specified types (usually determined by assay content of the ores) irrespective of where these ores were produced. Nevertheless, as indicated in the table, the Census Bureau figures based on a classification of all ores mined at each establishment are roughly comparable to the figures for groups of specified ores as tabulated by the Bureau of Mines.
2. Census figures for metals contained in all ores, concentrates, and bullion for 1977 represent gross metal content as reported by the respondent. Figures published by the Bureau of Mines represent recoverable metal content. This is the principal reason for the differences between the figures from the two bureaus for metal content of copper-, lead-, zinc-, gold-, and silver-bearing materials.
3. Census value figures represent reported values of ores, concentrates, and bullion, f.o.b. mine or mill. Bureau of Mines value figures are estimated on the basis of recovered metals prices, thus measuring the value of these metals as they come from the smelter or refinery rather than at the mine and mill level.
4. Bureau of the Census figures for milled or treated products include materials produced from foreign ores. Bureau of Mines product statistics represent domestic ores only.
5. The Bureau of Mines excluded from its 1977 statistics shipments made in January of that year if such shipments had been included in their 1976 statistics. Likewise, any shipments actually made during 1976 but not included in Bureau of Mines figures for that year, were added to the 1977 figures. Census statistics represent only mine or mill shipments in 1977.
6. The Bureau of Mines includes metals recovered at smelters from old slag and smelter cleanings if that metal was not included in their statistics for earlier years. Only metals contained in ores mined or milled in 1977 are included in Census statistics.
7. The Bureau of the Census excludes single-unit establishments with no paid employees. The Bureau of Mines includes all reports obtained, regardless of size. However, the contribution to products of such establishments is very small.
8. Some differences in the State statistics result from the assignment by the Bureau of Mines of concentrates produced in one State from ores mined in another to the State in which the mine is located. Census statistics include such concentrates in the State where the mill is located.

1977 Bureau of the Census and Bureau of Mines Statistics Compared

Product	Bureau of the Census statistics				Bureau of Mines statistics		
	Production		Shipments		Production		
	Short tons (millions)	Metal content ¹	Short tons (millions)	Value (million dollars)	Short tons (millions)	Metal content ¹	Value ² (million dollars)
Copper, lead, zinc, gold, and silver ores mined. . .	³ 262.8	(NA)	(NA)	⁴ 2,315.1	286.8	(NA)	3,021.9
Copper.	(NA)	3,279.9	(NA)	(NA)	(NA)	3,007.9	2,009.3
Lead.	(NA)	1,143.9	(NA)	(NA)	(NA)	1,185.0	363.8
Zinc.	(NA)	929.8	(NA)	(NA)	(NA)	899.2	309.3
Gold.	(NA)	1,082.0	(NA)	(NA)	(NA)	1,100.0	163.2
Silver.	(NA)	38,163.0	(NA)	(NA)	(NA)	38,166.0	176.3
Copper ores:							
Crude ore mined in the Copper Ores industry . .	239.1	(NA)	(NA)	(NA)	259.9	2,696.1	(NA)
Copper concentrates.	5.2	2,730.1	5.2	1,310.2	(NA)	2,432.8	(NA)
Copper precipitates, including precipitates from ores leached in place	.4	⁵ 514.4	.4	223.8	⁶ .2	⁷ 529.9	(NA)
Lead and zinc ores:							
Crude ore mined in the Lead and Zinc Ores industry	17.7	(NA)	(NA)	(NA)	⁸ 19.8	(NA)	(NA)
Lead concentrates.	.8	1,090.9	.8	243.3	(NA)	⁹ 1,176.7	(NA)
Zinc concentrates.	.8	812.2	.7	145.7	(NA)	¹⁰ 887.4	(NA)
Gold ores:							
Crude ore mined in the Gold Ores industry . .	4.8	(NA)	(NA)	(NA)	¹¹ 6.3	(NA)	(NA)
Gold concentrates.	(X)	(D)	(X)	¹³ 93.2	(NA)	¹² 23.8	(NA)
Mill bullion.	(D)	(NA)	(D)	(D)	(NA)	624.2	(NA)
Piacer gold.	(D)	(NA)	(D)	(D)	(NA)	23.2	3.4
Silver ores:							
Crude ore mined in the Silver Ores industry . .	1.2	(NA)	(NA)	(NA)	¹⁴ 1.0	(NA)	(NA)
Silver concentrates.	¹⁵ 54.5	14,632.0	54.1	78.5	(NA)	14,527.0	(NA)
Mill bullion.	(D)	(D)	(D)	(D)	(NA)	1,325.0	(NA)

(D) Withheld to avoid disclosing operations of individual companies. (NA) Not available. (X) Not applicable.

¹ Census quantity figures represent assayed gross metal content and Bureau of Mines quantity figures represent recoverable metal content of mine production. Copper, lead, and zinc quantities are in million pounds. Gold and silver quantities are in thousand fine ounces.² Estimated by Bureau of Mines from quantity of mine production and a weighted average unit price of domestic refined metals.³ Represents only ores mined in copper ores, lead and zinc ores, silver ores, and gold ores industries.⁴ Represents gross shipments.⁵ Includes cathode copper.⁶ Represents precipitates (from dump or in-place leaching) shipped. Excludes precipitates from copper ore leached (heap, vat, or tank).⁷ Represents precipitates (from dump or in-place leaching) shipped and copper ore leached (heap, vat, or tank).⁸ Represents lead, zinc, lead-zinc, copper-lead, copper-zinc, and copper-lead-zinc ores.⁹ Represents lead content recoverable from mine production.¹⁰ Represents zinc content recoverable from mine production.¹¹ Represents gold ore and gold-silver ore produced.¹² Represents metal contained in gold ore and gold-silver ore less mill bullion produced.¹³ Represents lode gold concentrates, mill bullion, and precipitates.¹⁴ Represents silver ores and old tailings produced.¹⁵ Represents thousand short-tons.

Table 1 Historical Statistics for the Industry: 1977 and Earlier Years

(For explanation of terms, see appendix)

Census year	All establishments			All employees		Production, development, and exploration workers			Cost of supplies used, purchased machinery installed, etc.					
	Companies (number)	Total (number)	With 20 employees or more (number)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (million)	Wages (million dollars)	Value added in mining (million dollars)	Value of ship-ments (million dollars)	Value of net ship-ments ¹ (million dollars)	Quantity of primary products ²	Capital expenditures (million dollars)	
INDUSTRY 1021, COPPER ORES														
1977 ³	63	133	61	33.1	544.3	23.0	44.0	356.0	1,066.7	997.4	1,856.2	(D)	239.1	207.4
1972 ³	110	181	71	36.4	386.8	27.8	56.4	279.2	1,025.3	772.5	1,588.5	(D)	261.1	209.2
1967 ³	(NA)	156	62	20.9	170.9	15.0	32.5	114.6	436.5	361.6	675.9	561.5	127.5	122.1
1963	118	160	41	26.5	187.3	21.4	45.3	142.4	417.1	340.2	670.2	546.2	145.3	87.1
1958 ³	112	148	38	27.6	143.5	20.9	41.0	106.4	266.5	236.0	457.6	374.4	112.0	44.9
1954 ⁶	179	210	41	27.8	136.1	21.5	46.7	98.5	334.9	256.1	508.7	409.9	91.0	82.2
INDUSTRY 1031, LEAD AND ZINC ORES														
1977 ³	54	88	41	7.1	105.1	5.4	10.7	75.0	329.1	131.5	418.4	411.4	17.7	42.1
1972 ³	60	101	47	7.7	72.0	6.2	12.4	54.7	199.7	77.6	251.3	(D)	17.9	26.0
1967 ³	(NA)	167	57	9.1	60.9	7.5	15.0	46.2	102.6	92.4	151.2	135.8	17.1	43.8
1963	163	205	46	9.4	49.3	7.8	14.8	37.9	84.4	63.5	136.0	119.8	14.2	11.9
1958 ³	226	288	52	11.2	54.4	8.7	16.7	39.0	73.7	55.5	120.6	103.8	14.4	8.6
1954 ⁶	411	520	90	16.6	71.4	13.6	27.6	53.7	107.4	80.1	175.9	140.1	18.5	11.5
INDUSTRY GROUP 104, GOLD AND SILVER ORES														
1977 ³	(NA)	175	20	4.6	71.1	3.7	7.0	53.4	161.1	78.2	198.6	(D)	6.0	40.7
1972 ³	(NA)	134	12	2.8	30.0	2.3	4.9	22.0	60.6	20.0	75.2	(D)	4.1	5.4
1967 ³	(NA)	183	15	3.8	25.5	3.2	6.9	20.2	51.4	16.3	63.3	63.3	3.9	4.4
1963	459	466	15	4.2	24.8	3.6	7.6	20.0	49.0	18.3	60.2	60.2	3.4	7.2
1958 ³	466	470	23	4.4	23.2	3.8	8.2	19.8	42.1	16.4	54.7	53.3	2.9	3.8
1954 ⁶	669	695	25	5.6	25.3	4.9	11.2	21.2	42.2	18.0	55.6	53.7	2.8	4.6
INDUSTRY 1041, GOLD ORES														
1977 ³	119	126	8	2.6	39.5	2.0	3.8	28.1	78.2	42.5	99.0	(D)	4.8	21.7
1972 ³	73	81	5	1.8	19.6	1.5	3.4	15.2	46.6	12.5	55.6	(D)	3.7	3.5
1967 ³	(NA)	125	8	2.6	17.3	2.2	5.0	13.8	35.4	11.2	44.8	44.8	3.2	1.8
1963	354	359	7	2.8	16.0	2.4	5.2	13.2	27.1	10.8	34.1	34.1	2.5	3.9
1958 ³	406	409	18	3.4	17.4	3.0	6.5	14.9	31.8	13.0	42.1	40.8	2.4	2.6
1954 ⁶	572	594	22	4.4	19.2	3.9	9.0	16.2	32.3	14.7	43.5	41.7	2.2	3.5
INDUSTRY 1044, SILVER ORES														
1977 ³	45	49	12	2.0	31.6	1.7	3.2	25.4	82.9	35.7	99.6	99.6	1,171	19.0
1972 ³	51	51	7	1.0	10.3	.8	1.5	7.3	13.6	7.2	19.0	(D)	435	1.8
1967 ³	(NA)	58	7	1.2	8.2	1.0	1.9	6.4	16.0	5.1	18.5	18.5	700	2.6
1963	105	107	8	1.5	8.8	1.2	2.3	6.8	21.9	7.4	26.1	26.1	916	3.3
1958 ³	60	61	5	1.0	5.8	.9	1.7	4.8	10.4	3.3	12.6	12.4	496	1.2
1954 ⁶	98	101	3	1.3	6.0	1.1	2.2	5.0	9.9	3.4	12.1	12.1	514	1.1

Note: For data prior to 1954, see 1963 Census of Mineral Industries, vol. I, table 1 of industry chapter.

(D) Withheld to avoid disclosing operations of individual companies. (NA) Not available.

¹For industry 1031, represents gross shipments less receipts from other establishments for preparation. For industries 1041 and 1044, represents gross shipments less receipts from other establishments for preparation and value of resales.

²Represents millions of short tons for Copper Ores, Lead and Zinc Ores, and Gold Ores, and Gold Ores industries. Excludes figures for placer gold. For Silver Ores industry, represents thousands of short tons. For Copper Ores industry in 1963, includes ore valued chiefly for copper produced in other industries. In 1967, 1972, and 1977, represents ores produced in all industries but placed in the industry of greatest metal value.

³In 1977, 1972, and 1967, data for establishments without paid employees were excluded from the census. In 1963, number of establishments without paid employees and their percentage of the industry's value added were as follows: Copper Ores industry, 41 establishments and less than 1 percent of value added; Lead and Zinc Ores industry, 46 establishments and less than 1 percent of value added; Placer Gold industry, 80 establishments and less than 1 percent of value added; and Silver Ores industry, 50 establishments and less than 1 percent of value added.

⁴Reflects a substantial decrease in activity caused by a labor strike during most of the second half of 1967 which affected all but a few copper mining and milling operations.

⁵Excludes data for copper ores, lead ores, and lode gold in Alaska. For 1958, the following numbers of establishments were reported in Alaska: Copper ores, 9 establishments with 6 employees; lead ores, 2 establishments with 0 to 4 employees; and lode gold, 7 establishments with 0 to 4 employees.

⁶Excludes data for 2 copper ore establishments in Alaska with less than 15 employees.

⁷Excludes data for lode gold in Alaska.

Table 2. Industry Statistics by Geographic Area and Type of Operation: 1977 and 1972

(For explanation of terms, see appendix)

Geographic area and type of operation	1977										1972		
	Establishments	All employees		Production, development, and exploration workers			Cost of supplies used, Value added in mining, etc.				Capital expenditures (mil. dol.)	All employees (1,000)	Value added in mining (mil. dol.)
	Total (no.)	With 20 employees or more (no.)	Num-ber ¹ (1,000)	Payroll (mil. dol.)	Num-ber (1,000)	Hours (mil- lions)	Wages (mil. dol.)	Value added in mining (mil. dol.)	Value purchased machinery installed, etc. (mil. dol.)	Value of ship-ments (mil. dol.)			
INDUSTRY 1021, COPPER ORES													
United States.....	133	61	33.1	544.3	23.0	44.0	356.0	1,066.7	997.4	1,856.2	207.9	36.4	1,025.3
GEOGRAPHIC AREA													
New England Division:													
Massachusetts.....	1	1	AA	(D)	-	-	-	-	-	-	-	BB	(D)
Middle Atlantic Division:													
New York.....	4	4	.7	18.1	-	-	-	-	-	-	-	(NA)	(NA)
East North Central Division:													
Michigan.....	3	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(E)	FF	(D)
Mountain Division:													
Montana.....	3	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Colorado.....	3	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
New Mexico.....	6	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Arizona.....	47	30	18.6	296.1	13.7	25.7	205.8	660.1	538.2	1,119.7	78.7	AA	(D)
Utah.....	19	9	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Nevada.....	12	6	1.8	28.1	1.2	2.2	18.3	35.7	45.6	74.7	6.6	EE	(D)
TYPE OF OPERATION													
Producing establishments	108	58	32.5	534.0	22.7	43.2	349.0	1,065.3	937.8	1,856.2	167.0	36.1	1,025.7
Mines with treatment plants...	33	31	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Underground.....	7	7	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Open pit.....	25	23	18.6	290.9	14.4	27.7	218.5	738.7	598.0	1,229.1	107.6	14.0	555.1
Combination and other.....	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Treatment plants only.....	6	6	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Undistributed (central administrative offices only).	30	21	3.2	69.5	-	-	-	-	-	-	-	(NA)	(NA)
Nonproducing estab-lishments.....	25	3	.6	10.3	.4	.7	6.9	1.3	59.6	-	60.9	.3	-.4
INDUSTRY 1031, LEAD AND ZINC ORES													
United States.....	88	41	7.1	105.1	5.4	10.7	75.0	329.1	131.5	418.4	42.1	7.7	199.7
GEOGRAPHIC AREA													
Middle Atlantic Division:													
New York.....	8	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey.....	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Pennsylvania.....	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
East North Central Division:													
Wisconsin.....	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
West North Central Division:													
Missouri.....	11	9	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
South Atlantic Division:													
Virginia.....	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
East South Central Division:													
Tennessee.....	10	7	1.0	12.1	.8	1.7	9.5	19.8	(D)	34.0	(D)	EE	(D)
Mountain Division:													
Idaho.....	13	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Colorado.....	10	5	1.0	12.8	.8	1.5	10.4	35.3	7.7	40.3	2.7	1.2	19.1
New Mexico.....	3	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Utah.....	7	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
TYPE OF OPERATION													
Producing establishments	79	40	7.0	103.9	5.3	10.6	74.2	329.7	130.7	418.4	42.1	(D)	(D)
Mines only.....	42	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Underground.....	42	4	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mines with treatment plants...	28	28	5.9	86.6	4.8	9.6	68.0	320.5	119.2	399.5	40.1	6.0	175.7
Underground.....	27	27	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Combination and other.....	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Undistributed (central administrative offices only).	8	7	.5	9.9	-	-	-	-	-	-	-	(NA)	(NA)

See footnotes at end of table.

Table 2. Industry Statistics by Geographic Area and Type of Operation: 1977 and 1972 - Con

(For explanation of terms, see appendix)

Geographic area and type of operation	1977											1972	
	Establishments		All employees		Production, development, and exploration workers			Cost of supplies used, purchased machinery, etc.				All employees	Value added in mining
	Total (no.)	With 20 employees or more (no.)	Number ¹ (1,000)	Payroll (mil. dol.)	Number (1,000)	Hours (millions)	Wages (mil. dol.)	Value added in mining (mil. dol.)	Value of machinery installed, etc. (mil. dol.)	Value of shipments (mil. dol.)	Capital expenditures (mil. dol.)		
INDUSTRY 1041, GOLD ORES													
United States.....	126	8	2.6	39.5	2.0	3.8	28.1	78.2	42.5	99.0	21.7	1.8	46.6
GEOGRAPHIC AREA													
West North Central Division:													
South Dakota.....	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Mountain Division:													
Nevada.....	16	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pacific Division:													
California.....	20	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Alaska.....	17	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
TYPE OF OPERATION													
Producing establishments	116	8	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	46.1
Mines with treatment plants...	11	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	45.6
Underground.....	4	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Open pit.....	7	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Undistributed.....	102	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
INDUSTRY 1044, SILVER ORES													
United States.....	49	12	2.0	31.6	1.7	3.2	25.4	82.9	35.7	99.6	19.0	1.0	13.6
GEOGRAPHIC AREA													
Mountain Division:													
Idaho.....	16	8	1.3	21.0	1.1	2.1	16.5	62.7	(D)	70.7	(D)	CC	(D)
Colorado.....	6	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Utah.....	4	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
TYPE OF OPERATION													
Producing establishments	48	12	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	13.4
Mines only.....	37	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Underground.....	37	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Mines with treatment plants...	9	8	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	11.4
Underground.....	6	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Open pit.....	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Combination and other.....	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)

- Represents zero. (D) Withheld to avoid disclosing operations of individual companies. (NA) Not available.

¹Statistics for some producing States are withheld to avoid disclosing operations of individual companies. However, for such States with 100 employees or more, number of establishments is shown and employment size range is indicated by one of the following symbols: AA--100 to 249 employees; BB--250 to 499 employees; CC--500 to 999 employees; EE--1,000 to 2,499 employees; FF--2,500 employees or more.

Table 3a. Summary Statistics for the Industry by State: 1977

(For explanation of terms, see appendix)

Item	Unit of measure	Industry 1021, Copper Ores			Industry 1031, Lead and Zinc Ores		Industry 1041, Gold Ores--	Industry 1044, Silver Ores--
		United States	Arizona	Nevada	United States	Colorado	United States	United States
All establishments.....	Number...	133	47	12	88	10	126	49
With 0 to 19 employees.....	do.....	72	17	6	47	5	118	37
With 20 to 99 employees.....	do.....	17	8	1	14	1	3	4
With 100 employees or more.....	do.....	44	22	5	27	4	5	8
All employees, average for year.....	1,000....	33.1	18.6	1.8	7.1	.9	2.6	2.0
Payroll for year, all employees.....	Mil. dol.	544.3	294.1	28.1	105.1	12.8	39.5	31.6
Production, development, and exploration workers:								
Average for year.....	1,000....	23.0	13.7	1.2	5.4	.8	2.0	1.7
March.....	do.....	25.2	15.6	1.3	5.7	.8	2.0	1.4
May.....	do.....	25.4	15.6	1.3	5.3	.8	2.0	1.7
August.....	do.....	21.2	12.5	1.2	5.1	.8	2.1	1.8
November.....	do.....	20.4	11.3	1.1	5.4	.6	2.0	1.8
Hours.....	Millions.	44.0	25.7	2.2	10.7	1.5	3.8	3.2
January to March.....	do.....	12.5	7.5	.6	2.8	.4	.9	.7
April to June.....	do.....	12.3	7.6	.6	2.7	.4	1.0	.8
July to September.....	do.....	9.0	5.1	.5	2.6	.4	1.0	.8
October to December.....	do.....	10.2	5.6	.5	2.6	.3	.9	.9
Wages.....	Mil. dol.	356.0	205.8	18.3	75.0	10.4	28.1	25.4
Supplemental labor costs not included in payroll..	do.....	137.0	80.6	7.7	22.9	2.7	10.1	8.3
Legally required expenditures, including Social Security contributions.....	do.....	40.2	26.0	2.8	9.0	1.4	3.2	3.3
Payments for voluntary programs.....	do.....	96.8	54.6	5.0	13.9	1.3	6.9	5.1
Value added in mining.....	do.....	1,066.7	660.1	35.7	329.1	35.3	78.2	82.9
Cost of supplies.....	do.....	997.4	538.3	45.5	131.5	7.7	42.5	35.7
Supplies used, minerals received, and purchased machinery installed.....	do.....	764.5	389.3	35.2	95.2	5.7	26.6	31.0
Resales.....	do.....	-	-	-	-	-	-	(2)
Purchased fuels consumed.....	do.....	71.5	44.1	2.5	3.9	.3	2.2	1.3
Purchased electric energy:								
Quantity.....	Mil. kwh.	4,524.3	2,981.0	248.3	852.1	68.8	157.3	115.0
Cost.....	Mil. dol.	106.5	74.5	7.2	18.9	1.4	3.3	2.2
Electric energy generated less sold.....	Mil. kwh.	1,367.4	959.5	-	.8	.8	37.2	(2)
Contract work.....	Mil. dol.	54.9	30.4	.6	13.5	.3	10.4	1.0
Cost of purchased communication services.....	do.....	1.4	.8	.1	.4	.1	(2)	.4
Value of shipments.....	do.....	1,856.2	1,119.7	74.7	418.4	40.3	99.0	99.6
Value of resales.....	do.....	-	-	-	-	-	-	(2)
Beginning of year inventories.....	do.....	355.5	281.5	10.1	38.2	3.4	19.2	7.1
Mined or quarried products.....	do.....	172.3	165.2	1.8	17.8	1.9	9.5	3.6
Supplies, parts, fuels, etc.....	do.....	183.2	116.3	8.4	20.5	1.6	9.7	3.4
End of year inventories.....	do.....	357.2	280.9	9.9	37.9	3.8	18.2	8.6
Mined or quarried products.....	do.....	164.9	156.8	1.6	15.8	2.2	9.7	4.6
Supplies, parts, fuels, etc.....	do.....	192.3	124.1	8.4	22.1	1.6	8.5	4.0
Hours worked by production, development, and exploration workers.....	Millions.	44.0	25.7	2.2	10.7	1.5	3.8	3.2
At mines.....	do.....	29.0	17.4	1.2	8.8	1.2	2.3	2.8
Underground.....	do.....	6.7	4.9	.1	7.2	.9	1.6	2.3
Open pit.....	do.....	13.6	6.0	.5	(2)	-	.3	.1
Surface, including mine shops and yards.....	do.....	8.7	6.5	.6	1.6	.3	.4	.4
At preparation plants.....	do.....	14.9	8.4	1.0	1.7	.3	1.2	.3
Hours worked, n.s.k.....	do.....	.1	(2)	(2)	.1	(2)	.2	.1
Hours worked on exploration and development (included above).....	do.....	2.3	1.6	(2)	.8	.1	.1	.1

See footnotes at end of table.

Table 3a. Summary Statistics for the Industry by State: 1977-Con.

(For explanation of terms, see appendix)

Item	Unit of measure	Industry 1021, Copper Ores			Industry 1031, Lead and Zinc Ores		Industry 1041, Gold Ores--United States	Industry 1044, Silver Ores--United States
		United States	Arizona	Nevada	United States	Colorado		
Gross value of depreciable assets (usually original cost) at beginning of year.....	Mil. dol.	3,353.0	2,216.1	137.1	504.8	37.3	133.4	58.3
Buildings and other structures, except land....	do.....	403.5	265.6	25.5	89.0	8.8	8.1	14.5
Machinery and equipment.....	do.....	2,172.5	1,397.3	88.4	194.0	14.1	80.1	26.6
Mineral exploration and development.....	do.....	459.5	320.0	.4	88.5	7.7	21.2	13.4
Mineral land and rights.....	do.....	317.6	233.2	22.9	133.3	6.7	24.0	3.7
Capital expenditures during year (except land and mineral rights).....	do.....	207.9	78.7	6.6	42.1	2.7	21.7	19.0
New capital expenditures during year.....	do.....	139.9	55.8	6.4	21.2	1.5	17.1	14.6
Buildings and other structures, except land....	do.....	7.7	1.5	1.7	.6	(Z)	9.8	.9
Machinery and equipment.....	do.....	132.2	54.3	4.7	20.6	1.5	7.3	13.7
Used capital expenditures during year.....	do.....	16.9	.9	.1	1.0	.1	.9	.7
Buildings and other structures, except land....	do.....	8.0	(Z)	(Z)	(Z)	-	(Z)	-
Machinery and equipment.....	do.....	8.9	.9	.1	1.0	.1	.9	.7
Mineral exploration and development.....	do.....	51.0	21.9	-	19.9	1.1	3.7	3.6
Capitalized land and mineral rights.....	do.....	6.3	1.9	.2	.6	.3	.1	.2
Deductions from depreciable assets during year....	do.....	187.5	19.7	6.0	11.1	.7	1.4	.3
Buildings and other structures, except land....	do.....	35.9	.9	(Z)	1.8	(Z)	.2	.1
Machinery and equipment.....	do.....	116.0	18.5	5.6	6.9	.7	1.2	.2
Mineral exploration and development.....	do.....	34.7	.3	(Z)	2.2	(Z)	-	(Z)
Mineral land and rights.....	do.....	.8	(Z)	.4	.3	(Z)	(Z)	(Z)
Depreciation and depletion charges for year.....	do.....	150.2	101.0	6.8	25.3	2.4	7.9	5.8
Buildings and other structures, except land....	do.....	13.0	9.3	1.0	3.8	.5	.8	.9
Machinery and equipment.....	do.....	99.0	63.1	4.2	13.5	.8	5.5	2.9
Mineral exploration and development.....	do.....	26.5	20.8	(Z)	4.8	.9	1.1	1.9
Mineral land and rights.....	do.....	11.7	7.8	1.5	3.2	.3	.6	.2
Gross value of depreciable assets at end of year..	do.....	3,379.6	2,276.9	137.9	536.4	39.6	153.9	77.1
Buildings and other structures, except land....	do.....	383.3	266.2	27.3	87.8	8.8	17.7	15.4
Machinery and equipment.....	do.....	2,197.6	1,436.0	87.6	208.7	15.0	87.1	40.8
Mineral exploration and development.....	do.....	475.7	341.6	.4	106.3	8.8	24.9	17.1
Mineral land and rights.....	do.....	323.0	235.1	22.7	133.6	7.0	24.1	3.9
Rental payments during the year.....	do.....	7.1	3.5	.4	4.3	.1	.5	.1
Buildings and other structures, except land....	do.....	.2	.2	-	(Z)	(Z)	(Z)	-
Machinery and equipment.....	do.....	6.9	3.4	.4	4.3	.1	.3	.1
Lease rents.....	do.....	3.2	3.1	-	.3	(Z)	(Z)	(Z)
Expensed mineral exploration, development, land, and rights.....	do.....	27.7	17.2	1.1	12.1	.4	2.1	5.1
Mineral exploration and development.....	do.....	26.2	16.1	.7	6.6	.4	.9	5.0
Mineral land and rights.....	do.....	1.5	1.1	.4	5.6	-	1.1	.2

- Represents zero. (Z) Less than 50 thousand dollars or hours; under 50 employees.

Table 30. Summary Statistics for the Industry by Type of Operation: 1977

(For explanation of terms, see appendix)

Item	Unit of measure	Industry 1021, Copper Ores				Industry 1031, Lead and Zinc Ores		
		United States	Producing establishments		Non-producing establishments	United States	Producing establishments	
			Total	Open pit mines with treatment plants			Total	Mines with treatment plants
All establishments.....	Number...	133	108	25	25	88	79	28
With 0 to 19 employees.....	do.....	72	50	2	22	47	39	-
With 20 to 99 employees.....	do.....	17	16	2	1	14	13	5
With 100 employees or more.....	do.....	44	42	21	2	27	27	23
All employees, average for year.....	1,000....	33.1	32.5	18.6	.6	7.1	7.0	5.9
Payroll for year, all employees.....	Mil. dol.	544.3	534.0	290.9	10.3	105.1	103.9	86.6
Production, development, and exploration workers:								
Average for year.....	1,000....	23.0	22.7	14.4	.4	5.4	5.3	4.8
March.....	do.....	25.2	24.8	16.0	.3	5.7	5.6	5.1
May.....	do.....	25.4	25.0	16.1	.4	5.3	5.2	4.7
August.....	do.....	21.2	20.8	12.8	.4	5.1	5.0	4.6
November.....	do.....	20.4	20.0	12.9	.4	5.4	5.4	4.9
Hours.....	Millions.	44.0	43.2	27.7	.7	10.7	10.6	9.6
January to March.....	do.....	12.5	12.3	8.0	.2	2.8	2.8	2.5
April to June.....	do.....	12.3	12.1	7.8	.2	2.7	2.7	2.4
July to September.....	do.....	9.0	8.8	5.3	.2	2.6	2.5	2.3
October to December.....	do.....	10.2	10.0	6.5	.2	2.6	2.6	2.4
Wages.....	Mil. dol.	356.0	349.0	218.5	6.9	75.0	74.2	68.0
Supplemental labor costs not included in payroll..	do.....	137.0	134.5	89.6	2.5	22.9	22.7	20.6
Legally required expenditures, including Social Security contributions.....	do.....	40.2	39.2	24.7	.9	9.0	8.9	8.1
Payments for voluntary programs.....	do.....	96.8	95.3	65.0	1.5	11.9	11.8	12.5
Value added in mining.....	do.....	1,066.7	1,065.3	738.7	1.3	329.1	329.7	320.5
Cost of supplies.....	do.....	997.4	937.8	598.0	59.6	131.5	130.7	119.2
Supplies used, minerals received, and purchased machinery installed.....	do.....	764.5	726.2	435.1	38.2	95.2	94.8	85.2
Resales.....	do.....	-	-	-	-	-	-	-
Purchased fuels consumed.....	do.....	71.5	70.7	58.9	.8	3.9	3.8	3.6
Purchased electric energy:								
Quantity.....	Mil. kwh.	4,524.3	4,478.9	2,723.8	45.4	852.1	823.0	796.1
Cost.....	Mil. dol.	106.5	105.7	71.3	.8	18.9	18.9	17.6
Electric energy generated less sold.....	Mil. kwh.	1,367.4	1,366.2	1,162.9	1.2	.8	.8	.8
Contract work.....	Mil. dol.	54.9	35.2	32.7	19.7	13.5	13.3	12.8
Cost of purchased communication services.....	do.....	1.4	1.3	.9	.1	.4	.4	.4
Value of shipments.....	do.....	1,856.2	1,856.2	1,229.1	-	418.4	418.4	399.5
Value of resales.....	do.....	-	-	-	-	-	-	-
Beginning of year inventories.....	do.....	355.5	351.5	274.9	4.0	38.2	38.2	34.4
Mined or quarried products.....	do.....	172.3	172.3	154.4	(%)	17.8	17.8	15.1
Supplies, parts, fuels, etc.....	do.....	183.2	179.2	120.6	4.0	20.5	20.5	19.3
End of year inventories.....	do.....	357.2	352.9	283.4	4.4	37.9	37.9	34.4
Mined or quarried products.....	do.....	164.9	164.9	151.2	(%)	15.8	15.8	13.5
Supplies, parts, fuels, etc.....	do.....	192.3	188.0	132.2	4.3	22.1	22.1	20.9
Hours worked by production, development, and exploration workers.....								
At mines.....	Millions.	44.0	43.2	27.7	.7	10.7	10.6	9.6
Underground.....	do.....	29.0	28.3	19.0	.7	8.8	8.7	7.9
Open pit.....	do.....	6.7	6.3	-	.4	7.2	7.1	6.4
Surface, including mine shops and yards.....	do.....	13.6	13.6	13.5	-	(%)	(%)	(%)
At preparation plants.....	do.....	8.7	8.4	5.5	.2	1.6	1.6	1.5
Hours worked, n.s.k.....	do.....	14.9	14.9	8.6	.1	1.7	1.7	1.7
Hours worked on exploration and development (included above).....	do.....	.1	.1	-	(%)	.1	.1	(%)
Hours worked on exploration and development (included above).....	do.....	2.3	1.8	.2	.4	.8	.8	.7

See footnotes at end of table.

Table 3b. Summary Statistics for the Industry by Type of Operation: 1977-Cont.

(For explanation of terms, see appendix)

Item	Unit of measure	Industry 1021, Copper Ores				Industry 1031, Lead and Zinc Ores		
		United States	Producing establishments		Non-producing establishments	United States	Producing establishments	
			Total	Open pit mines with treatment plants			Total	Mines with treatment plants
Gross value of depreciable assets (usually original cost) at beginning of year.....	Mil. dol.	3,353.0	3,239.3	2,467.9	113.7	504.8	498.3	471.8
Buildings and other structures, except land....	do.....	403.5	399.8	272.1	3.7	89.0	88.0	84.7
Machinery and equipment.....	do.....	2,172.5	2,124.6	1,710.9	47.9	194.0	191.6	175.4
Mineral exploration and development.....	do.....	459.5	415.7	236.5	43.7	88.5	86.7	84.5
Mineral land and rights.....	do.....	317.6	299.2	248.4	18.4	133.3	132.0	127.3
Capital expenditures during year (except land and mineral rights).....	do.....	207.9	147.0	107.6	60.9	42.1	42.0	40.1
New capital expenditures during year.....	do.....	139.9	102.7	93.8	37.2	21.2	21.2	20.0
Buildings and other structures, except land....	do.....	7.7	5.5	4.9	2.2	.6	.6	.5
Machinery and equipment.....	do.....	132.2	97.2	88.9	35.0	20.6	20.6	19.5
Used capital expenditures during year.....	do.....	16.9	16.8	.6	.1	1.0	.9	.3
Buildings and other structures, except land....	do.....	8.0	8.0	-	(Z)	(Z)	(Z)	-
Machinery and equipment.....	do.....	8.9	8.8	.6	.1	1.0	.9	.3
Mineral exploration and development.....	do.....	51.0	27.4	13.2	23.6	19.9	19.9	19.8
Capitalized land and mineral rights.....	do.....	6.3	6.3	6.2	-	.6	.6	.5
Deductions from depreciable assets during year....	do.....	187.5	185.1	28.7	2.3	11.1	10.7	10.6
Buildings and other structures, except land....	do.....	35.9	35.8	.9	.1	1.8	1.8	1.8
Machinery and equipment.....	do.....	116.0	113.8	27.3	2.2	6.9	6.4	6.4
Mineral exploration and development.....	do.....	34.7	34.7	.4	-	2.2	2.2	2.1
Mineral land and rights.....	do.....	.8	.8	.1	(Z)	.3	.3	.3
Depreciation and depletion charges for year.....	do.....	150.2	143.5	115.4	6.7	25.3	25.0	23.1
Buildings and other structures, except land....	do.....	13.0	12.8	9.0	.2	3.8	3.8	3.6
Machinery and equipment.....	do.....	99.0	97.1	81.2	1.9	13.5	13.4	11.9
Mineral exploration and development.....	do.....	26.5	22.9	15.7	3.5	4.8	4.7	4.6
Mineral land and rights.....	do.....	11.7	10.7	9.5	1.0	3.2	3.2	3.0
Gross value of depreciable assets at end of year..	do.....	3,379.6	3,207.4	2,553.0	172.1	536.4	530.2	501.7
Buildings and other structures, except land....	do.....	383.3	377.5	276.0	5.8	87.8	86.8	83.4
Machinery and equipment.....	do.....	2,197.6	2,116.8	1,773.2	80.8	208.7	206.6	188.8
Mineral exploration and development.....	do.....	475.7	408.4	249.3	67.2	106.3	104.5	102.2
Mineral land and rights.....	do.....	323.0	304.7	254.5	18.4	133.6	132.4	127.4
Rental payments during the year.....	do.....	7.1	6.6	5.7	.5	4.3	4.3	4.3
Buildings and other structures, except land....	do.....	.2	.2	(Z)	(Z)	(Z)	(Z)	(Z)
Machinery and equipment.....	do.....	6.9	6.4	5.7	.5	4.3	4.3	4.3
Lease rents.....	do.....	3.2	3.2	1.1	(Z)	.3	.3	.3
Expensed mineral exploration, development, land, and rights.....	do.....	27.7	23.9	15.1	3.8	12.1	12.1	11.4
Mineral exploration and development.....	do.....	26.2	22.4	15.0	3.8	6.6	6.6	5.9
Mineral land and rights.....	do.....	1.5	1.5	.1	-	5.6	5.6	5.5

- Represents zero.
under 50 employees.

(D) Withheld to avoid disclosing operations of individual companies.

(Z) Less than 50 thousand dollars or hours.

Table 4. Industry Statistics by Employment Size of Establishment: 1977

(For explanation of terms, see appendix)

Industry and employment size class ¹	All estab- lishments (number)	All employees		Production, development, and exploration workers			Cost of supplies used, purchased machinery installed, etc.				Capital expendi- tures (million dollars)
		Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added in mining (million dollars)	Value of shipments (million dollars)			
INDUSTRY 1021, COPPER ORES											
Total.....	133	33.1	544.3	23.0	44.0	356.0	1,066.7	997.4	1,856.2	207.4	
Establishments with an average of--											
0 to 4 employees.....E6	50	.1	1.2	(Z)	.1	.6	.5	2.3	2.7	.1	
5 to 9 employees.....E1	13	(.2)	(3.8)	(.1)	(.2)	(1.5)	(2.5)	(3.8)	(2.9)	(3.3)	
10 to 19 employees.....	9	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
20 to 49 employees.....	9	.3	4.9	(Z)	.1	.5	(Z)	(D)	(D)	(D)	
50 to 99 employees.....	8	.6	12.8	.2	.5	4.7	21.2	10.0	29.1	1.9	
100 to 249 employees.....	12	2.1	36.0	1.0	1.8	14.9	38.4	31.4	62.0	7.8	
250 to 499 employees.....	12	4.1	74.3	2.1	3.8	32.6	48.6	162.1	151.8	(D)	
500 to 999 employees.....	10	6.5	105.5	4.7	9.1	71.4	237.6	191.8	391.6	37.8	
1,000 to 2,499 employees.....	8	(19.3)	(305.8)	(14.8)	(28.3)	(229.7)	(717.8)	(595.9)	(1,215.8)	(97.9)	
2,500 or more employees.....	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
Covered by administrative records ² ...	33	.1	.9	.1	.1	.7	2.5	1.3	3.6	.2	
INDUSTRY 1031, LEAD AND ZINC ORES											
Total.....	88	7.1	105.1	5.4	10.7	75.0	329.1	131.5	418.4	42.1	
Establishments with an average of--											
0 to 4 employees.....E8	33	(Z)	.5	(Z)	.1	.4	.7	.4	1.0	.2	
5 to 9 employees.....E3	10	.1	.9	.1	.1	.6	1.6	(.9)	2.0	(.1)	
10 to 19 employees.....	4	.1	.6	(Z)	.1	.4	.1	(D)	-	(D)	
20 to 49 employees.....	8	(.7)	(10.8)	(.3)	(.7)	(4.2)	(11.4)	(11.0)	(21.2)	(1.1)	
50 to 99 employees.....	6	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
100 to 249 employees.....	18	3.0	41.8	2.5	5.0	33.4	156.4	67.1	195.1	28.4	
250 to 499 employees.....	8	(3.2)	(50.4)	(2.4)	(4.8)	(35.9)	(159.3)	(52.1)	(199.2)	(12.2)	
500 to 999 employees.....	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
Covered by administrative records ² ...	30	(Z)	.6	(Z)	.1	.5	1.2	.4	1.5	.1	
INDUSTRY 1041, GOLD ORES											
Total.....	126	2.6	39.5	2.0	3.8	28.1	78.2	42.5	99.0	21.7	
Establishments with an average of--											
0 to 4 employees.....E6	107	.2	2.0	.1	.2	1.8	3.8	2.7	5.8	.7	
5 to 9 employees.....E1	6	(.1)	(1.6)	(.1)	(.2)	(1.3)	(1.5)	(2.2)	(2.9)	(.8)	
10 to 19 employees.....	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
20 to 49 employees.....	2	(2.3)	(35.9)	(1.8)	(3.4)	(25.0)	(72.9)	(37.6)	(90.3)	(20.3)	
50 to 99 employees.....	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
100 to 249 employees.....	4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
1,000 to 2,499 employees.....	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
Covered by administrative records ² ...	80	.1	1.3	.1	.1	1.2	2.9	1.7	4.3	.2	
INDUSTRY 1044, SILVER ORES											
Total.....	49	2.0	31.6	1.7	3.2	25.4	82.9	35.7	99.6	19.0	
Establishments with an average of--											
0 to 4 employees.....E3	31	(Z)	.4	(Z)	(Z)	.3	1.5	1.1	2.3	.3	
5 to 9 employees.....E6	4	.1	.6	(Z)	.1	.4	1.4	1.1	2.2	.3	
10 to 19 employees.....E6	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
20 to 49 employees.....	3	(1.9)	(30.5)	(1.6)	(3.1)	(24.6)	(80.0)	(33.4)	(95.1)	(18.3)	
50 to 99 employees.....	1	(D)	(D)	-	-	-	-	-	-	-	
100 to 249 employees.....	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
250 to 499 employees.....	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	
Covered by administrative records ² ...	27	(Z)	.4	(Z)	(Z)	.3	.7	.5	1.0	.1	

- Represents zero. (D) Withheld to avoid disclosing operations of individual companies. Data for this item are included in figures in parentheses above. (Z) Less than 50 thousand dollars or hours; under 50 employees.

¹ Payroll and sales data for small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the balance of items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at time data were tabulated. The following symbols are shown where estimated data based on administrative records data account for 10 percent or more of figures shown: E1--10 to 19 percent; E2--20 to 29 percent; E3--30 to 39 percent; E4--40 to 49 percent; E5--50 to 59 percent; E6--60 to 69 percent; E7--70 to 79 percent; E8--80 to 89 percent; E9--90 to 99 percent; E0--100 percent.

² Report forms were not mailed to small single-unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1977 were obtained from administrative records supplied to other agencies of the Federal Government. These data were then used in conjunction with averages to estimate the balance of items shown. Data are also included in respective size classes shown.

Table 5a. Industry-Product Analysis—Summary of Industry Shipments and Receipts and Net Shipments of Primary Products: 1977 and 1972

(Millions of dollars. An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as resales or contract work. Columns A-E show this product pattern for an industry. Extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H. For explanation of terms, see appendix)

1977 indus- try code	Industry and census year	Value of shipments and receipts					Value of net shipments of primary products or services		
		Total	Primary products	Secondary products	Receipts for services	Products purchased and resold without further processing	Total produced in all industries	Produced in this industry	Produced in other industries
		A	B	C	D	E	F	G	H
1021	Copper ores.....1977..	1,856.2	1,685.3	170.9	-	-	(D)	(D)	(D)
	1972..	1,588.5	1,514.7	73.8	-	(Z)	(D)	(D)	(D)
1031	Lead and zinc ores.....1977..	418.4	403.2	15.2	-	-	400.2	396.2	4.0
	1972..	251.3	241.3	10.0	-	(Z)	(D)	(D)	(D)
1041	Gold ores.....1977..	99.0	(D)	(D)	-	-	102.6	(D)	(D)
	1972..	55.6	(D)	(D)	-	-	(D)	(D)	(D)
1044	Silver ores.....1977..	99.6	97.5	2.1	-	(Z)	100.4	97.5	2.9
	1972..	19.5	(D)	(D)	-	-	20.1	(D)	(D)

- Represents zero. (D) Withheld to avoid disclosing operations of individual companies. (Z) Less than 50 thousand dollars or hours; under 50 employees.

Table 5b. Ores Mined and Gross-Metal-Content Shipments: 1977

Product	Unit of measure	All industries	Copper, lead and zinc, gold, and silver industries					All other industries
			Total	Copper ores	Lead and zinc ores	Gold ores	Silver ores	
Copper, lead, zinc, gold and silver ores mined..	Mill. s. tons...	(NA)	262.8	239.1	17.7	4.8	1.2	(NA)
Gross copper content.....	1,000 lbs....	3,279,923	(D)	3,187,475	41,194	-	(D)	(D)
Crude ores shipped to smelters and leaching plants.....	do.....	2,474	2,474	(D)	(D)	-	(D)	-
Concentrates.....	do.....	2,763,065	(D)	2,677,383	(D)	-	(D)	(D)
Copper concentrates.....	do.....	2,730,136	(D)	(D)	(D)	-	-	(D)
Lead, zinc, gold and silver concentrates.....	do.....	32,929	32,929	(D)	26,300	-	(D)	-
Copper precipitates.....	do.....	1514,384	(D)	(D)	-	-	-	(D)
Gross lead content.....	do.....	1,143,939	1,143,939	-	1,099,263	-	44,676	-
Crude ores shipped to smelters.....	do.....	(D)	(D)	-	(D)	-	-	-
Concentrates.....	do.....	(D)	(D)	-	(D)	-	44,676	-
Lead concentrates.....	do.....	1,090,881	1,090,881	-	(D)	-	(D)	-
Copper, gold, zinc, and silver concentrates.....	do.....	(D)	(D)	-	13,567	-	(D)	-
Gross zinc content.....	do.....	929,787	(D)	22,766	898,239	-	(D)	(D)
Crude ores shipped to smelters.....	do.....	(D)	(D)	-	(D)	-	-	-
Concentrates.....	do.....	(D)	849,052	22,766	(D)	-	(D)	(D)
Zinc concentrates.....	do.....	812,199	(D)	(D)	796,878	-	(D)	(D)
Copper, lead, gold, and silver concentrates.....	do.....	(D)	(D)	(D)	(D)	-	(D)	-
Gross gold content.....	1,000 fine oz..	1,082	1,082	371	63	607	42	(Z)
From lode deposits.....	do.....	(D)	(D)	371	63	(D)	42	(Z)
Crude ores shipped to smelters.....	do.....	(D)	(D)	(D)	(D)	-	(D)	-
Concentrates.....	do.....	468	(D)	(D)	61	(D)	(D)	(Z)
Gold concentrates.....	do.....	58	58	-	(D)	(D)	-	-
Copper, lead, zinc, and silver concentrates.....	do.....	410	410	(D)	(D)	-	(D)	(Z)
Mill bullion and precipitates.....	do.....	(D)	(D)	-	(D)	(D)	(D)	-
From placer gravels.....	do.....	(D)	(D)	-	-	(D)	-	-
Gross silver content.....	do.....	38,163	(D)	13,140	6,284	(D)	18,339	(D)
From lode deposits.....	do.....	(D)	37,964	13,140	6,284	1,999	18,339	(D)
Crude ores shipped to smelters.....	do.....	1,562	1,562	3	159	-	1,399	-
Concentrates.....	do.....	35,559	(D)	13,137	(D)	(D)	(D)	(D)
Silver concentrates.....	do.....	14,662	14,662	(D)	(D)	-	14,076	-
Copper, lead, zinc, and gold concentrates.....	do.....	20,898	(D)	(D)	5,873	(D)	(D)	(D)
Mill bullion and precipitates.....	do.....	(D)	(D)	-	(D)	(D)	(D)	-
From placer gravels.....	do.....	(D)	(D)	-	-	(D)	-	-

- Represents zero. (D) Withheld to avoid disclosing operations of individual companies. (NA) Not available. (Z) Less than 50 thousand dollars or hours; under 50 employees.

¹Includes cathode copper.

Table 6 Products—Quantity and Value of Shipments by State: 1977 and 1972

(Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of the products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see appendix. Value of shipments)

1977 product code	Product and geographic area	Quantity of pro- duction for all purposes (million s. tons)	Product shipment		Gross quantity of metals contained ¹				
			Quantity (million s. tons)	Value (million dollars)	Copper (1,000 pounds)	Lead (1,000 pounds)	Zinc (1,000 pounds)	Gold (1,000 fine ounces)	Silver (1,000 fine ounces)
	COPPER ORES								
	UNITED STATES								
1021- --	Total.....	1977..	(X)	(X)	1,704.9	(X)	(X)	(X)	(X)
		1972..	(X)	(X)	1,532.9	(X)	(X)	(X)	(X)
10211 --	Crude copper ores.....	1977..	239.1	(D)	(D)	(NA)	(NA)	(NA)	(NA)
		1972..	261.1	74.0	220.4	(NA)	(NA)	(NA)	(NA)
10211 0-	Crude ores mined.....	1977..	239.1	(X)	(X)	(NA)	(NA)	(NA)	(NA)
		1972..	261.1	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10211 03	From underground operations.....	1977..	25.1	(X)	(X)	(NA)	(NA)	(NA)	(NA)
		1972..	34.5	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10211 05	From open pit operations.....	1977..	214.0	(X)	(X)	(NA)	(NA)	(NA)	(NA)
		1972..	226.6	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10211 2-	Ores and residues shipped to smelters and mills.....	1977..	(D)	(D)	(D)	634,311	-	(D)	(D)
		1972..	74.0	74.0	220.4	1,138,067	-	(D)	(D)
10211 21	To smelters.....	1977..	(D)	(D)	(D)	(D)	-	(D)	(D)
		1972..	(D)	(D)	(D)	(D)	-	(D)	(D)
10211 23	To mills.....	1977..	(D)	(D)	(D)	(D)	-	(D)	(D)
		1972..	(D)	(D)	(D)	(D)	-	(D)	(D)
10212 01	Copper concentrates.....	1977..	5.2	5.2	1,310.2	2,730,136	2,160	(D)	375
		1972..	5.8	5.8	1,102.0	2,858,772	(D)	484	15,044
10213 01	Copper precipitates.....	1977..	2.4	2.4	223.8	2514,384	(X)	(X)	(X)
		1972..	2.3	2.3	2204.0	2490,630	(X)	(X)	(X)
10210 00	Copper ores, n.s.k.....	1977..	(X)	(X)	5.0	(X)	(X)	(X)	(X)
		1972..	(X)	(X)	6.5	(X)	(X)	(X)	(X)
	NEW MEXICO								
10212 01	Copper concentrates.....	1977..	.7	.7	135.7	299,132	-	(D)	950
		1972..	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	ARIZONA								
10212 01	Copper concentrates.....	1977..	2.9	3.0	754.0	1,663,532	-	-	102
		1972..	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
10213 01	Copper precipitates.....	1977..	.1	.1	77.7	178,469	-	-	-
		1972..	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
	LEAD AND ZINC ORES								
	UNITED STATES								
1031- --	Total.....	1977..	(X)	(X)	407.2	(X)	(X)	(X)	(X)
		1972..	(X)	(X)	244.5	(X)	(X)	(X)	(X)
10311 --	Crude lead and zinc ores.....	1977..	17.7	(D)	(D)	(NA)	(NA)	(NA)	(NA)
		1972..	17.9	2.9	18.7	(NA)	(NA)	(NA)	(NA)
10311 0-	Crude ores mined.....	1977..	17.7	(X)	(X)	(NA)	(NA)	(NA)	(NA)
		1972..	17.9	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10311 03	From underground operations.....	1977..	(D)	(X)	(X)	(NA)	(NA)	(NA)	(NA)
		1972..	(D)	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10311 05	From open pit operations.....	1977..	(D)	(X)	(X)	(NA)	(NA)	(NA)	(NA)
		1972..	(D)	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10311 2-	Ores and residues for shipment.....	1977..	1.6	1.6	11.9	(D)	(D)	109,282	(D)
		1972..	2.9	2.9	18.7	(D)	(D)	(D)	(D)
10311 21	To smelters.....	1977..	(D)	(D)	(D)	(D)	(D)	(D)	(D)
		1972..	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10311 23	To mills.....	1977..	(D)	(D)	(D)	-	-	(D)	-
		1972..	(D)	(D)	(D)	(D)	(D)	(D)	(D)
10312 --	Lead and zinc concentrates.....	1977..	1.6	1.5	392.0	26,222	1,101,915	836,017	32
		1972..	1.9	1.9	224.8	19,641	1,250,060	981,385	66
10312 01	Lead concentrates.....	1977..	.8	.8	243.3	24,559	1,090,881	23,818	27
		1972..	.9	.9	135.3	16,289	1,235,563	40,770	47
10312 21	Zinc concentrates.....	1977..	.8	.7	148.7	1,663	11,034	812,199	5
		1972..	.9	.9	89.5	3,352	14,497	940,615	19
10310 00	Lead and zinc ores, n.s.k.....	1977..	(X)	(X)	3.3	(X)	(X)	(X)	(X)
		1972..	(X)	(X)	1.0	(X)	(X)	(X)	(X)
	MISSOURI								
10311 03	Crude ores mined.....	1977..	8.9	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10311 05		1972..	(NA)	(X)	(X)	(NA)	(NA)	(NA)	(NA)
10312 --	Lead and zinc concentrates.....	1977..	.8	.8	227.4	11,275	959,963	181,097	-
		1972..	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	2,417

See footnotes at end of table.

Table 6 Products—Quantity and Value of Shipments by State: 1977 and 1972—Con.

(Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of the products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see appendix, Value of shipments)

1977 product code	Product and geographic area	Quantity of pro- duction for all purposes (million s. tons)	Product shipment		Gross quantity of metals contained ¹				
			Quantity (million s. tons)	Value (million dollars)	Copper (1,000 pounds)	Lead (1,000 pounds)	Zinc (1,000 pounds)	Gold (1,000 fine ounces)	Silver (1,000 fine ounces)
	LEAD AND ZINC ORES—Con.								
	UNITED STATES								
	COLORADO								
10311 03	Crude ores mined.....1977..	1.0	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
10311 05	1972..	1.5	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
10312 --	Lead and zinc concentrates.....1977..	.1	.1	33.0	(D)	40,867	87,960	32	938
	1972..	.3	.3	22.9	3,887	63,347	150,036	37	1,363
	GOLD ORES								
	UNITED STATES								
1041- --	Total.....1977..	(X)	(X)	102.6	(X)	(X)	(X)	(X)	(X)
	1972..	(X)	(X)	55.5	(X)	(X)	(X)	(X)	(X)
10411 0-	Crude lode gold ore mined.....1977..	4.8	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
	1972..	3.7	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
10412 01	Lode gold concentrates, mill bullion, and								
10413 03	precipitates.....1977..	(X)	(X)	93.2	-	(D)	-	(D)	1,170
	1972..	(X)	(X)	54.2	(D)	(D)	(D)	885	936
10417 07	Placer gold production and shipments.....1977..	(D)	(D)	³ (D)	(X)	(X)	(X)	(D)	(X)
	1972..	(D)	(D)	³ (D)	(X)	(X)	(X)	(D)	(X)
10410 00	Gold ores, n.s.k.....1977..	(X)	(X)	39.1	(X)	(X)	(X)	(X)	(X)
	1972..	(X)	(X)	31.2	(X)	(X)	(X)	(X)	(X)
	SILVER ORES								
	UNITED STATES								
1044- --	Total.....1977..	(X)	(X)	100.4	(X)	(X)	(X)	(X)	(X)
	1972..	(X)	(X)	21.6	(X)	(X)	(X)	(X)	(X)
10441 0-	Crude silver ores mined.....1977..	1.2	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
	1972..	.5	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
10442 01	Silver concentrates.....1977..	⁴ 54.5	⁴ 54.1	78.5	6,707	(D)	(D)	3	14,662
	1972..	⁴ 25.9	⁴ 26.0	19.1	5,735	5,974	(D)	3	11,699
10442 12	Ores and residues shipped to smelters and mills, silver								
10442 30	mill bullion and precipitates, and placer silver...1977..	(X)	(X)	17.4	(X)	(X)	(X)	(X)	(X)
	1972..	(X)	(X)	(NA)	(X)	(X)	(X)	(X)	(X)
10440 00	Silver ores, n.s.k.....1977..	(X)	(X)	4.5	(X)	(X)	(X)	(X)	(X)
	1972..	(X)	(X)	(NA)	(X)	(X)	(X)	(X)	(X)
	IDAHO								
1044- --	Total.....1977..	(X)	(X)	70.1	(X)	(X)	(X)	(X)	(X)
	1972..	(X)	(X)	15.5	(X)	(X)	(X)	(X)	(X)
10441 0-	Crude silver ores mined.....1977..	.7	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
	1972..	(NA)	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)
10442 01	Silver concentrates.....1977..	⁴ 42.8	⁴ 42.5	62.7	6,336	(D)	(D)	(D)	12,629
	1972..	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
10441 2-	Ores and residues shipped to smelters and mills, silver								
10443 0-	mill bullion and precipitates, placer silver, and silver								
10440 00	ores n.s.k.....1977..	(X)	(X)	7.4	(NA)	(NA)	(NA)	(NA)	(NA)
	1972..	(X)	(X)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

- Represents zero. (D) Withheld to avoid disclosing operations of individual companies. (NA) Not available. n.s.k. Not specified by kind. (X) Not applicable.

¹Represents metal content of production where both production and shipments are shown.

²Includes cathode copper.

³Value figures for placer gold production and shipments and crude ore shipped to smelters included with gold ores, n.s.k., to avoid disclosing operations of individual companies.

⁴Represents thousands of short tons.

Table 7. Selected Supplies and Fuels Used, Minerals Received for Preparation, and Purchased Machinery Installed: 1977 and 1972

(Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see appendix, Cost of supplies used, purchased machinery installed, etc. and Selected supplies used, and minerals prepared, etc.)

1977 ma- te- rial code	Item	Unit of measure	1977		1972	
			Quantity	Delivered cost (million dollars)	Quantity	Delivered cost (million dollars)
	INDUSTRY 1021, COPPER ORES					
	Selected supplies and fuels used, minerals received for preparation, and purchased machinery installed.....		(X)	835.9	X	659.9
100091	Selected supplies used, minerals received for preparation, and purchased machinery installed.....		(X)	764.4	X	638.9
	Minerals received for preparation:					
	Crude ores and residues.....	Million s. tons.	(D)	1	73.9	220.1
	Crude ores mined and prepared at same establishment.....	Million s. tons.	177.3	(X)	182.9	X
353011	Purchased machinery installed (see note).....		(X)	215.5	X	147.1
	Supplies used:					
241100	Round or hewn wood products and stumpage.....		(X)	7.1	X	4.8
289211	Explosive materials, except ammonium nitrate.....	Million lbs.	38.9	7.2	54.1	5.5
289212	Ammonium nitrate.....	Million lbs.	164.3	11.0	171.3	6.9
289214	Blasting accessories.....		(X)	4.5	X	3.9
331201	Steel mill shapes and forms.....		(X)	84.4	X	30.8
970099	All other supplies (see note).....		(X)	1433.1	X	213.8
974000	Undistributed supplies used, minerals received for preparation, and purchased machinery installed ²		(X)	1.4	X	3.9
	Fuels used.....		(X)	71.5	(X)	23.0
121005	Coal--bituminous, lignite, and anthracite.....	1,000 s. tons.	(D)	(D)	(D)	(D)
	Fuel oil:					
291141	Distillate (light) grade numbers 1, 2, and 4 and light diesel fuel.....	1,000 barrels...	2,067.0	32.1	2,119.5	10.6
291151	Residual (heavy) grade numbers 5 and 6 and heavy diesel fuel.....	1,000 barrels...	(D)	(D)	258.2	1.2
131157	Gas--natural, manufactured, and mixed.....	Billion cu. ft..	16.8	18.7	16.1	8.0
291111	Gasoline.....	Million gal.	5.9	3.0	6.5	1.5
960018	Other fuels--liquefied petroleum gas, coke, wood, and other.....		(X)	1.0	(X)	1.3
977000	Undistributed fuels ²		(X)	.3	(X)	(D)
	INDUSTRY 1031, LEAD AND ZINC ORES					
	Selected supplies and fuels used, minerals received for preparation, and purchased machinery installed.....		(X)	98.9	(X)	61.9
	Selected supplies used, minerals received for preparation, and purchased machinery installed.....		(X)	95.1	(X)	60.8
100091	Ores and residues prepared in the lead and zinc industry:					
	Received from other establishments for preparation.....	Mil. s. tons...	1.6	7.0	17.4 {	(¹)
	Mined and prepared at same establishment.....	Mil. s. tons...	16.4	(X)		(X)
353011	Purchased machinery installed.....		(X)	36.4	(X)	14.4
	Supplies used:					
241100	Round or hewn wood products and stumpage.....		(X)	1.4	(X)	1.1
289211	Explosive materials, except ammonium nitrate.....	Million lb.	11.7	3.9	9.0	2.1
289212	Ammonium nitrate.....	Million lb.	12.7	1.1	8.2	.4
289214	Blasting accessories.....		(X)	1.9	(X)	1.5
331201	Steel mill shapes and forms.....		(X)	12.2	(X)	4.7
970099	All other supplies.....		(X)	30.4	(X)	34.8
974000	Undistributed supplies used, minerals received for preparation, and purchased machinery installed ²		(X)	.6	(X)	1.3
	Fuels used.....		(X)	3.8	(X)	1.3
121005	Coal--Bituminous, lignite, and anthracite.....	1,000 s. tons..	4.0	.1		
131157	Gas--natural, manufactured, and mixed.....	Bil. cu. ft.	.4	.7	.2	.1
291111	Gasoline.....	Mil. gals.	.4	.2	.5	.1
	Fuel oil:					
291141	Distillate (light) grade numbers 1, 2, and 4 and light diesel fuel.....	1,000 barrels..	116.8	2.1	113.1	.7
291151	Residual (heavy) grade numbers 5 and 6 and heavy diesel fuel.....	1,000 barrels..	(D)	(D)	8.1	(²)
960018	Other fuels--liquefied petroleum gas, coke, wood, and other.....		(X)	(D)	(X)	.2
977000	Undistributed fuels ²		(X)	-	(X)	(D)
	INDUSTRY 1041, GOLD ORES					
	Selected supplies and fuels used, minerals received for preparation, and purchased machinery installed.....		(X)	28.7	(X)	11.0
	Selected supplies used, minerals received for preparation, and purchased machinery installed.....		(X)	26.6	(X)	10.4
100091	Ores and residues prepared in the gold ores industry:					
104310	Mined and prepared at same establishment.....	Mil. s. tons...	4.7	(X)	3.4	(X)
	Gravel washed in placer operations.....	Mil. cu. yd....	(D)	(X)	(D)	(X)
	Supplies used:					
289211	Explosive materials, except ammonium nitrate.....	Million lb....	(D)	(D)	.3	.1
289212	Ammonium nitrate.....	Million lb....	5.0	.5	6.9	.2
289214	Blasting accessories.....		(X)	(D)	(X)	.3
970099	All other supplies.....		(X)	12.0		
241100	Round or hewn wood products and stumpage.....		(X)	(D)	X	9.6
331201	Steel mill shapes and forms.....		(X)	(D)		
353011	Purchased machinery installed.....		(X)	(D)		
974000	Undistributed supplies used, minerals received for preparation, and purchased machinery installed ²		(X)	8.1		
	Fuels used.....		(X)	1.7	(X)	.2
			(X)	2.1	(X)	.5

See footnotes at end of table.

Table 7. Selected Supplies and Fuels Used, Minerals Received for Preparation, and Purchased Machinery Installed: 1977 and 1972 - Con.

(Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see appendix, Cost of supplies used, purchased machinery installed, etc. and Selected supplies used, and minerals prepared, etc.)

1977 mate- rial code	Item	Unit of measure	1977		1972	
			Quantity	Delivered cost (million dollars)	Quantity	Delivered cost (million dollars)
	INDUSTRY 1044, SILVER ORES					
	Selected supplies and fuels used, minerals received for preparation, and purchased machinery installed.....		(X)	32.4	(X)	6.6
100091	Selected supplies used, minerals received for preparation, and purchased machinery installed.....		(X)	31.0	(X)	6.1
	Ores and residues prepared in silver ores industry:					
	Ores and residues received for preparation.....	Mil. s. tons...	-	-	-	-
	Crude ores produced and prepared at same establishment.....	Mil. s. tons...	1.0	(X)	.4	(X)
353011	Purchased machinery installed.....		(X)	15.2	(X)	.4
	Supplies used:					
241100	Round or hewn wood products and stumpage.....		(X)	1.5	(X)	.4
289211	Explosive materials, except ammonium nitrate.....	Million lb....	.9	.4	.8	.2
289212	Ammonium nitrate.....	Million lb....	1.8	.3	(X)	.1
289214	Blasting accessories.....		(X)	.3	(X)	.8
331201	Steel mill shapes and forms.....		(X)	1.6	(X)	3.3
970099	All other supplies.....		(X)	10.3	(X)	.9
974000	Undistributed supplies used, minerals received for preparation, and purchased machinery installed ²		(X)	1.4	(X)	.5
	Fuels used.....		(X)	1.3	(X)	(D)
131157	Gas--natural, manufactured, and mixed.....	Bil. cu. ft....	(D)	(D)	(D)	(D)
291111	Gasoline.....	Million gallon.	.2	.1	(D)	(D)
291141	Distillate (light) grade numbers 1,2, and 4 and light diesel fuel.....	1,000 bbl....	10.6	.2	(D)	(D)
960018	Other fuels--liquefied petroleum gas, coke, wood, and other.....		(X)	(D)	(X)	(D)
977000	Undistributed fuels ³		(X)	.7	(X)	(D)

Note: Data for code 353011 for Industry 1021 are broken out between purchased machinery installed and parts and attachments for renewals and repairs and are presented in the 1977 Census of Manufactures subject series report, "Selected Materials Consumed." Supplemental data for code 970099 are also presented in this publication.

- Represents zero. (D) Withheld to avoid disclosing operations of individual companies. (X) Not applicable. (Z) Less than \$50,000 or less than half the unit of measure specified for quantities.

¹Cost of crude ores and residues received for preparation was included in cost of all other supplies to avoid disclosing operations of individual companies.

²Total cost of supplies or fuels of establishments that did not report detailed supplies or fuels data, including establishments that were not mailed a form.

³Combined with all other supplies to avoid disclosing operations of individual companies.

APPENDIX. Explanation of Terms

Employment and related items—The regular report forms requested separate information on production, development, and exploration workers as of a payroll period for each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This category comprises all full-time and part-time employees on the payrolls of mining establishments who worked or received pay for any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Also included are employees of miners paid on a per ton, car, or yard basis. Excluded are employees at the mine but on the payroll of another employer (such as employees of contractors) and employees at company stores, boarding houses, bunk houses, and recreational centers. Also excluded are members of the Armed Forces and pensioners carried on the active rolls but not working during the period. Officers of corporations are included as employees, but proprietors and partners of unincorporated firms are excluded.

Production, development, and exploration workers—This category includes employees (up through the working foreman level) engaged in manual work: Using tools, operating machines, hauling materials, loading and hauling products out of the mine in mine cars or trucks, and caring for mines, plants, mills, shops, or yards. Included are exploration work, mine development, storage, shipping, maintenance, repair, janitorial, and watchmen services, auxiliary production for use at establishments (such as power plant), recordkeeping, and other services closely associated with these production and development operations at the establishment covered by the report. Gang and straw bosses and foremen who performed manual labor are included, as are employees paid on either a time- or piece-rate basis. Also included are miners paid on a per ton, car, or yard basis and the men engaged by them and paid out of the total amount received by these miners, and other employees at the establishment but not on its payroll if paid directly through its own employees, such as superintendents and foremen. Supervisory employees above the working foreman level are excluded from this category.

All other employees—Nonproduction personnel at the establishment include those engaged in the following activities: Supervision above the working foreman level, sales, highway trucking (by employees not entering mines or pits), advertising, credit, collection, clerical, and routine office functions, executive, purchasing, financing, legal, personnel (including cafeteria and medical), professional (such as

engineers and geologists), and technical activities. Also included are employees on the payroll of the establishment engaged in the construction of major additions or alterations to the plant and who are utilized as a separate work force. (Workers engaged in regular maintenance and repair operations are not included here but are classified as production, development, and exploration workers.)

Central administrative office and auxiliary unit employees—Employees at an office located at or near the mining establishment are usually included in the mine report. Employment during the payroll period which included March 12 at separate central administrative offices or auxiliary units of multiestablishment companies and at those offices or units servicing more than one establishment were classified on the basis of the industry or principal industry served.

All employees, average for year—The 1977 census report form requested employment figures for production, development, and exploration workers for four selected pay periods (mid-March, May, August, and November). For all other employees, only a mid-March figure was requested. The annual average is an average of the four monthly figures for production, development, and exploration workers plus the March figure for all other employees. This approach was used to simplify the schedule format and lighten the reporting burden of respondents, since it was found that the average of these selected pay periods closely approximates, for most industries, the average employment for the year that would be obtained from 12 monthly pay periods. In the employment data shown in this report, the 4-month average is shown for all industries.

Payroll—This item includes all forms of compensation such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of these establishments, if a corporation; it excludes payments to the proprietor or partners, if an unincorporated concern, and payments to members of Armed Forces and pensioners carried on the active payroll of mining establishments. Also excluded are royalty payments to unions and costs of smithing, explosives, fuses, electric cap lamps, and mine supplies used in production and development work but charged to employees and deducted from their wages. As in the case of employment and establishment figures, the annual payrolls of separate central administrative offices and auxiliary units of multiestablishment companies are included in the totals for individual industries and for

States. Respondents were told that in reporting they could follow the definition of payroll used for calculating the Federal withholding tax.

Production, development, and exploration worker hours—This item represents all hours that production, development, and exploration workers worked, both on active days during which there was production or development work and on inactive days when only watchmen, inspectors, repairmen, and other maintenance persons were on duty. It includes all hours worked or paid for at the mining operations, except hours paid for vacations, holidays, or sick leave, when the employee was not at the establishment. Included are actual overtime hours, not straight-time equivalent hours. Hours of working proprietors or partners are excluded.

Supplemental labor costs

Legally required expenditures, including social security contributions—This cost includes employer contributions for all programs required under Federal and State legislation, such as Federal Old Age and Survivors' Insurance, unemployment compensation, and workman's compensation. Also included are legally required State temporary disability payments.

Payments for voluntary programs—Included in this cost are payments for union negotiated contracts and all employer payments of insurance premiums on hospital and medical plans, life insurance premiums, and premiums on supplementary accident and sickness insurance. For programs supported by joint employer-employee contributions, only the employer payments are included. Also included are payments or allocations on all pension plans regardless of methods of administration, supplemental unemployment compensation plans, welfare plans, stock purchase plans in which the employer payment is not subject to withholding tax, and deferred profit sharing plans.

Value added in mining—This measure of mining activity is derived by subtracting the cost of supplies used, minerals received for preparation, purchased machinery installed, purchased fuel, purchased electricity, and contract work from the sum of the value of shipments (mining products plus receipts for services rendered) and total capital expenditures. This statistic avoids the duplication in value of shipments which results from the use of products of some establishments as supplies, energy sources, or materials by others. Moreover, it provides a measure of value added not only in mineral production but also in the development of mineral properties. For these reasons, it is considered to be the best value measure for comparing the relative economic importance of mining among industries and geographic areas.

Cost of supplies used, purchased machinery installed, etc.—Besides supplies used and purchased machinery installed, this cost includes fuels and electric energy used and contract work done by others for each establishment. It includes charges to

both the current and capital accounts. It also includes the cost of items used during 1977 whether they were purchased, withdrawn from inventories, or received from other establishments of the company. For selected supplies and fuels and for electric energy, both quantity and cost data were requested. The cost data refer to direct charges actually paid or payable (after discounts) for items used during the year. Freight charges and other direct charges incurred by the establishment in acquiring the item are included. Companies whose records did not show actual amounts used were asked to approximate use by adding purchases (or receipts) during the year to opening inventory and subtracting closing inventory. Separate figures were requested for (1) selected supplies used, minerals received for preparation, and purchased machinery installed; (2) electric energy purchased; (3) purchased fuels used for heat, power, or the generation of electricity; (4) contract work done by others; and (5) products bought and resold in the same condition. Supplies and equipment used in mine development, plant expansion, and capitalized repairs, which are chargeable to fixed assets accounts, are included in this item, as are supplies furnished without charge to contractors for use at the mining operation and supplies sold to employees for use at the establishment. Excluded are such costs as advertising, insurance, telephone, and research and consulting services of other establishments; or such overhead costs as depreciation charges, rent, interest, and royalties.

Selected supplies used, minerals prepared, etc.—In addition to the total cost of supplies used, purchased machinery installed, etc., which every establishment was required to report, information was also collected on the consumption of major supplies used in mining. These inquiries were restricted to supplies which were important parts of the cost of production, exploration, and development of a particular industry and for which cost information was available. Table 7 contains information on specific supplies consumed. On report forms for almost all mineral industries except the contract services and the crude petroleum and natural gas industries, a uniform inquiry was included on minerals prepared at the reported establishments. Figures were obtained on crude minerals mined at the establishment (quantity), received from other establishments of the company or purchased from others (quantity and cost), and received for preparation on a custom or toll basis (quantity and estimated value). Establishments consuming less than a specified amount (usually \$10,000) were not asked the cost of a supply. For small establishments for which administrative records were used, the cost of supplies was included in "not specified by kind." (See the text for the importance of administrative records to an industry.)

Value of shipments and receipts and net shipments—The amounts shown as value of shipments for each industry (tables 1-5), and for individual products or classes of products (table 6), are the net selling values, f.o.b. mine or plant after discounts and allowances, excluding freight charges. "Shipments" include all products physically shipped from the establishment during 1977, including material withdrawn from stockpiles and products shipped on consignment, whether or not sold in 1977.

Prepared material or concentrates include preparation from ores mined at the same establishment, purchased, received from other operations of the same company, or received for milling on a custom or toll basis. For products transferred to other establishments of the same company or prepared on a custom basis, companies were requested to report the estimated value, not merely the cost of producing the items. Multiestablishment companies were asked to report value information for each establishment as if it were a separate economic unit. They were instructed to report the value of all products transferred to other plants of the company at their full economic value, i.e., to include, in addition to direct cost of production, a reasonable proportion of company overhead and profits.

For all establishments classified in an industry, value of shipments includes, (1) the value of all "primary" products of the industry, (2) the value of "secondary" products which are primary to other industries, (3) the receipts for contract work done for others, except custom milling, and (4) the value of products purchased and resold without further processing. Receipts for custom milling are not included to avoid duplication with the value of custom milled ores included in an industry's primary and secondary products.

Some duplication exists in industry and industry group totals because of the inclusion of materials transferred from one establishment to another for mineral preparation or resale. When this duplication is significant, figures generally are shown for both gross and net shipments. The net shipments are obtained by subtracting the value of crude minerals transferred to other establishments for preparation and the value of resales from the gross shipments. Comparable figures for gross and net shipments are available for 1972, 1967, 1963, 1958, and 1954.

Shipments of individual products—In the 1977 Census of Mineral Industries, information was collected on output for about 200 individual mineral products. In general, the shipments figures of the 1977 and 1972 minerals censuses were confined to separate totals for each crude and each prepared mineral. When shipments were significant, separate figures were also obtained on crude minerals going to preparation plants and those going to consumers.

Figures were collected on both quantity and value of shipments. Shipments include commercial shipments and transfers of products to other operations of the same company. For products which are used to a significant extent within the same establishment for power or heat, and for minerals mined and prepared in the same establishment, total production figures or separate data on production for such uses were collected. Typically, production was also collected for products for which there was usually significant differences between total production and total shipments because of stock changes.

For service industries, the amount received or due for services performed during 1977 was collected as a measure of output. For mine operators who also perform services, the amount received for such services was added to the total value of products shipped to determine total value of shipments and receipts for each establishment.

Table 6 provides the national and State total shipments

figures from all industries for each of the products primary to the industry covered.

Capital expenditures—This item covers expenditures made during the year for development and exploration of mineral properties, for new construction, and for purchased machinery chargeable to fixed assets accounts of the mineral establishment. They are the type for which depreciation, depletion, or Office of Minerals Exploration accounts are ordinarily maintained. Capital expenditures during 1977 were to be determined as "additions completed during the year plus construction in progress at the end of the year minus construction in progress at the beginning of the year." Reported capital expenditures were to include work done on contract as well as by the mine forces. Expenditures for machinery and equipment were to include those made for replacement purposes, as well as those for additions to capacity. Excluded from these expenditures were costs of maintenance and repairs charged as current operating expense and expenditures for land and mineral rights.

Whenever applicable, separate figures were provided for expenditures for development and exploration of mineral property, construction of preparation plants and other construction, new machinery and equipment, used plant, and used equipment acquired from others.

Gross value of depreciable assets—Assets data were collected on buildings, other structures, machinery, equipment, capitalized mineral exploration and development, and mineral land and rights for which depreciation, amortization, or depletion accounts are maintained. The values shown represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation cost). The data were collected for the beginning and end of the year. Assets at the beginning of the year plus new and used capital expenditures less retirements should equal assets at the end of the year. For new construction or other improvement projects in progress but not completed by the end of the year, the cumulative capital expenditures were included in the beginning and end of year assets figures.

Retirements—This item represents the gross value of depreciable assets sold, retired, scrapped, destroyed, abandoned, etc., during 1977. The values shown are the acquisition costs of the retired assets. This item includes the value of assets (at acquisition cost rather than current market value) transferred to other establishments of the same company.

Depreciation—This item shows the reduction in value of depreciable assets brought about through use, gradual obsolescence, or the effect of the elements (decay or corrosion) during the year. Included are charges against assets acquired or completed during the year.

Rental payments—This item consists of rental payments made to other companies for use of such depreciable assets as buildings, other structures, machinery, and equipment. It does not include payments made to the parent company or another subsidiary

of the parent company for the use of buildings and equipment owned by the parent company or its subsidiary. The value of such company-owned assets is included in the gross value of depreciable assets.

Current account expenditures—This item includes all expenses for mineral properties, exploration, and development charged to current accounts. This includes all supplies, machinery, equipment, parts, fuels, power, etc., used for development or exploration and charged to current operating expenses. Also included are royalty payments, acquisition costs for mineral land and rights which were not capitalized, and the cost of maintenance and repairs associated with exploration or development activity and charged to current accounts.

Inventories—This item includes inventories of mined or quarried products, and supplies, parts, fuels, etc., at the beginning and end of the year. Included as mined or quarried products are

stockpiles of products ready for shipment and stocks of raw products awaiting treatment or beneficiation. All inventories are reported at approximate current costs, if feasible; otherwise they are reported at book values.

Fuels and electric energy used—This item includes the quantity and cost of fuels and electric energy used in mining. For most industries, separate quantity and cost figures are shown for purchased coal, distillate fuel oil, residual fuel oil, gas, gasoline, and electric energy, and a cost figure is shown for "other fuels" (see table 7). Data were also obtained on the quantity of fuels and electric energy produced and consumed at the same establishment. These data are shown for coal, crude petroleum, and natural gas used at the producing establishments for heat and power, and for electric energy generated and used at the same mining operation. For electric energy, the quantity generated and used is approximated by subtracting the quantity of electric energy sold from the total quantity generated (excluding generating station use).

PUBLICATION PROGRAM

1977 CENSUS OF MINERAL INDUSTRIES

Publications of the 1977 Census of Mineral Industries, containing final data on establishments primarily engaged in the extraction of minerals, are described below. Publication order forms for the specific reports may be obtained from any Department of Commerce district office or from Customer Services Branch, Data Users Services Division, Bureau of the Census, Washington, D.C. 20233.

Preliminary data from the 1977 census have been issued in 38 separate reports covering all of the 42 mineral industries. These reports are superseded by more detailed final reports. Subsequent to their publication in paperbound form, the final reports are assembled and reissued in cloth-bound volumes.

Final Reports

Industry series—14 reports (MIC77-I-10A to -14E)

Each of the 14 reports provides information for an industry or a group of related industries (e.g., clay, ceramic, and refractory minerals). Final figures for the United States are provided for each of 42 mineral industries on quantity and value of products shipped and supplies used; inventories; quantity and cost of fuels and electric energy purchased, and the quantities of fuels produced and consumed; capital expenditures; assets; rents; employment; depreciation, amortization and depletion; payrolls; hours worked; cost of purchased machinery; value added in mining; mineral development and exploration costs; number of establishments; and number of companies. Comparative data for earlier years are included. Industry statistics are shown by State, type of operation, and size of establishment.

Geographic Area series—9 reports (MIC77-A-1 to -9)

A separate report for each of the nine geographic divisions presents data for the 42 mineral industries for 2- and 3-digit industry groups by type of operation and by county. Also, data are shown for value of shipments, inventories, value added by mining, employment, payroll, hours worked, capital expenditures, assets, rents, cost of supplies, etc., purchased machinery installed, and number of mining establishments, with comparative 1972 data on employment and value added by mining.

Subject series—8 reports (MIC77-SR-1 to -8)

A general summary (MIC77-SR-1), brings together general statistics tables from each industry report and selected other data summarized at the National level.

Seven reports (MIC77-SR-2 to -8) contain final statistics for an individual subject such as water use in mineral industries; expenditures for plant and equipment, assets, rents, retirements, and depreciation; size of establishments; type of operation; fuels and electric energy consumed; type of organization; and selected materials consumed.

Final Report Volume

Data released earlier in separate paperbound reports are assembled and reissued in one clothbound volume.

Microfiche

All published data are also available on microfiche.

Computer Tapes

Public-use computer tapes contain the same summary statistics that are found in the published reports. Public use computer tapes are available for users who wish to summarize, rearrange, or process large amounts of data.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, manufactures, transportation, minority-owned business, women-owned businesses, and enterprise statistics also are issued as part of the 1977 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, and Guam. Separate announcements describing these reports are available free of charge from Customer Services Branch, Data Users Services Division, Bureau of the Census, Washington, D.C. 20233.